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DEPARTMENT OF DEFENSE
COST REDUCTION JOURNAL

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Cost Reduction Journal

Published by the Directorate for Cost Reduction Policy, Office of the Assistant Secretary of Defense (Installations and Logistics).

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(Installations & Logistics)

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The Cost Reduction Journal is published quarterly by the Directorate for Cost Reduction Policy, Office of the Assistant Secretary of Defense (Installations and Logistics), for distribution within the Department of Defense.

The Cost Reduction Journal seeks to stimulate cost reduction ideas, promote cost consciousness, and enhance understanding of efficiency programs. The Journal's content includes: (1) cost reduction goals and accomplishments: (2) policies and procedures of the cost reduction system; (3) cost reduction techniques and processes in all functional areas from which savings are derived; (4) new developments in concepts and philosophy that affect cost reduction objectives; and (5) specific cost reduction examples, with attribution where appropriate.

Unless otherwise indicated, Journal material may be reprinted provided: (1) credit is given to the Journal and the author; and (2) a single copy of the reprint is forwarded to the Journal.

Inquiries dealing with the Journal's policy and content may be directed to: Editor, Department of Defense Cost Reduction Journal, Room 3-C-834, Pentagon, Washington, D.C. 20301.

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SAVINGS AT GRASS ROOTS LEVEL

This story should kindle envy in every tired lawn-mowing suburbanite.

Cows and sheep clip the grass on thousands of Defense-owned acres—and their owners pay for the privilege.

Army and Navy outlease lands for grazing and other agricultural pursuits. The purpose is to control vegetation, prevent erosion, encourage water supply development, and reduce fire hazards. The last benefit is particularly important in areas likely to accumulate dry grass and other flammable vegetation. For example, control of the rough around ammunition igloos has always been a serious problem. The ever-present possibility of sparks from haying machines or fire danger from gasoline-powered mowers limits use of this type of equipment. Manual cutting by scythe or sickle is time consuming and expensive. Outleasing solves the problem by making the land available for grazing. Result: sheep or cattle take over the grass-cutting chore, eliminate the fire hazard, and grow fat in the process.

Outleasing also turns a neat profit. The U.S. Treasury receives $4 million annually in cash payments from leases. These payments are not reportable in the Cost Reduction Program because they accrue to the U.S. Treasury—not to Defense. However, when leasing reduces installation maintenance costs or increases maintenance productivity, the savings are reportable.

Our office wit sheepishly reports that the no-cost shearers of flammable vegetation in the above photo number only one, two, thr-e-e, f-o-u-r, f-i—, zzz-zz-zzz—(*See page 18 for feature on Navy's outleasing program.*) ☐

NAVAL STATION HEDGES LANDSCAPING COSTS

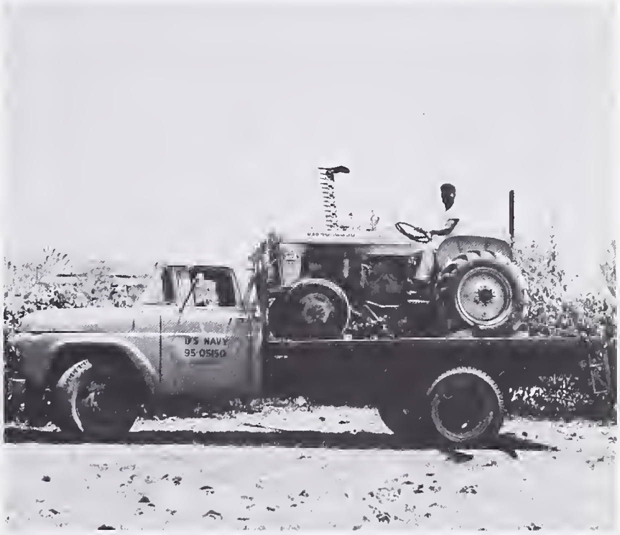
Somehow it just does not sound right for our seagoing Service to be first with a new technique in landscaping. That, however, is the fact.

The U.S. Naval Station, Trinidad, trimmed hedge-cutting time 60% in one grand swoop, swish, swipe—or whatever sicklebars do when operated from a tractor mounted on a flatbed truck.

It used to take an hour to clip 15 feet of hedge by hand at the station. Some 3,450 linear feet of hedge were clipped that way monthly. Now the whole job is done in a day.

The switch to mechanization came when Public Works employees cast covetous looks at a field tractor equipped with a sicklebar which was neatly cutting tall grass and weeds in the area. The hedge cutters reasoned that this device might suit their needs. However, there was one overriding disadvantage: the maximum cutting height of the mechanical mower was no more than a few inches above the ground! Obviously, the idea of hedges less than 4 or 5 inches in height was not received with enthusiasm. The only realistic solution then was to find some way to raise the cutting device to the desired height.

Public Works brainstormers came up with a simple but very clever answer to the problem. They merely combined two pieces of standard equipment, the field tractor and a flatbed truck. By mounting the tractor on the truck, so that the sicklebar is brought to the right cutting level, hedges can be cut in a jiffy.



The tractor can be mounted or dismounted with ease, allowing normal use of both units when they are not used for hedge cutting. This improved method saves the station about $1,600 a year. ☐

WORKSHOPS FOR HANDICAPPED

Where They Are—What They Do

"When contracting, consider the skills and services of workshops employing the handicapped." These words introduce a new DoD publication which lists over 200 workshops and briefly describes their production capabilities for procurement officers as well as prime contractors.

Generally, workshops offer a wide variety of services, ranging from simple sorting to highly complex cable-harness assemblies for electronic firms. They welcome "nuisance" jobs, which cut costs for contractors in many ways: by reprocessing materials that have been declared surplus or waste; by sorting floor sweepings to save valuable parts that have been dropped in assembly work; by renovating or repairing equipment formerly thought expendable.

In addition to salvage or repair work, workshops are equipped to produce, assemble, and package many different items. They also provide binding, collating, stapling, duplicating, and mailing services for offices.

Each job opening created by a contract or a subcontract means that a handicapped person is given a chance to prepare himself for employment, to become a taxpayer, rather than a tax receiver. This aspect of the program represents a considerable savings for the Nation's economy since it is estimated that for every dollar spent to rehabilitate a handicapped individual, a minimum of $7 is returned in federal income taxes alone after employment.

Jim Lewis, a double amputee with a total of only five fingers on his two hands, learned to solder as a result of a contract between Lockheed Aircraft Corp. and Goodwill Industries of Santa Clara in San Jose, Calif. He demonstrated his ingenuity despite his handicaps by attaching tools with masking tape to his hands; by breaking a record for soldering and applying minute sleeves to diodes; and by completing a Lockheed electronics training class with the highest grade in a class of 42 students. Jim Lewis is a Lockheed employee now, making room at Goodwill for another handicapped worker to follow in his footsteps.

The 1,000 sheltered workshops in the country today, with a total of about 50,000 employees, doing an estimated $150 million worth of business annually, provide a resource for manpower, willing and able to supply a wide variety of goods and services at competitive prices.

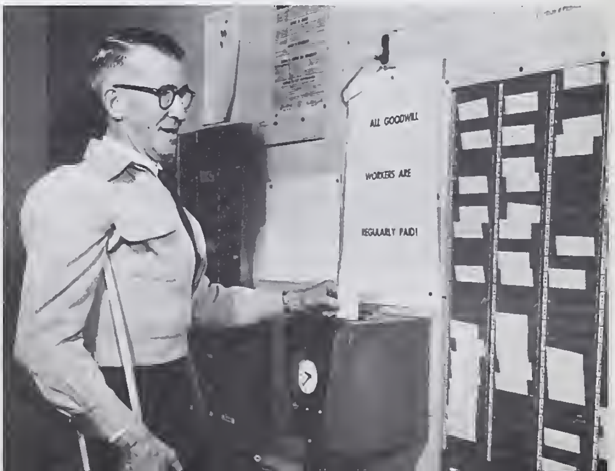
The new DoD directory serves as an introduction to some of these workshops, which are listed by State along with their manpower, facilities, and capabilities.

Paul R. Ignatius, Assistant Secretary of Defense for Installations and Logistics (photo above) states in the directory's preface: "The Department of Defense benefits through new sources and increased competition, and our society benefits by extending opportunity for productive work to persons who, by reason of their handicap, have not always enjoyed it."

Harold Russell, Chairman of the President's Committee on Employment of the Handicapped, considers the DoD directory "a magnificant opportunity for every handicapped person employed by a sheltered workshop. This directory proves that the facilities and manpower of sheltered workshops can be used advantageously by government and industry." ☐

"It isn't what you have, it's what you have left that counts."

Handicapped workers have proved themselves reliable, prompt, conscientious employees with little or no absenteeism. Often, their attendance records excel those of the able-bodied.



Organization Planning— The Way To Cost Reduction

***By* SOLIS HORWITZ**
Assistant Secretary of Defense
for Administration

The President has called for agency heads to be as bold and imaginative in developing proposals for reshaping and modernizing the executive branch as they have been in devising new programs. He has emphasized that he will take necessary steps to "modernize and streamline" the Executive Branch of the Government. Defense Department experience gives ample proof of cost reduction possibilities through organizational modernizing and streamlining actions.

A substantial portion of cost reduction savings which have been achieved in the Defense Department in recent years can be traced directly to changes and innovations in the Department's organization structure.

Improvements—Past and Potential

A recent change involved the creation of the Defense Contract Audit Agency wherein the contract audit function was withdrawn from the three military departments and combined into one Defense agency. In addition to the advantage to the auditors of working from one set of standards and the advantage to industry of dealing with only one Defense auditor instead of several separate Service auditors, there was a forecast savings of 5 percent in total personnel required to do the overall audit job. This savings translates to a cost reduction savings of almost $2 million a year. While DCAA was not a big saving, it was nevertheless a saving, and what's more the forecast saving has materialized.

The largest organizational change in recent years was one of Secretary McNamara's earliest—the creation of the Defense Supply Agency. Of course the DSA story is familiar to all in Defense and need not be repeated in detail here. To add emphasis to the cost reduction through organization thesis, however, it is pointed out that even with the greatly increased workload imposed by the Vietnam war, DSA is still operating with 13 percent fewer employees than its predecessor agencies in 1961. DSA was a big saving. Efficiencies and economies resulting from the creation of DSA translate to an operating saving in the area of $60 million a year.

Other organization structure changes of recent years have included the creation of the Defense Intelligence Agency (DIA); the Military Traffic Management and Terminal Service (MTMTS); the Office of the Assistant Secretary of Defense (Systems Analysis); the Special Assistant to the Joint Chiefs of Staff for Strategic Mobility (SASM); the Contract Administration Service in DSA; the Defense Attaché System in DIA; the high level reorganizations of the Army, the Navy, and the Air Force; the designation of single managers for certain common training—the Army manages all language training, the Navy manages all computer training and the Air Force manages all imagery and interpretation training; and the assignment of dependent schools overseas and Armed Forces Radio Stations overseas to single Services for management in order to eliminate costly duplication. This is by no means an exhaustive list, but it does contain many of the more significant structural changes, and suffice it to say there is an efficiency and economy story associated with each case. Some of these actions were big savings and some were small, but all were cost savers nevertheless.

Nor is there any apparent danger of running out of savings possibilities through organizational structure changes and innovations. Action is currently underway to examine such areas as communications, audiovisual activities, transportation activities, printing and publications services and security services. Future areas of investigation could involve such functions as recruiting, postal services, claims, personnel management, construction, etc., etc.

OSD Responsibility Pinpointed

Why is it that so much organizational activity has been conducted under the tenure of Secretary McNamara? The answer is found in the fact that Secretary McNamara made organizational structure investigation and action a full fledged function with a full time staff in his office. He brought organization planning from American industry to the Defense Department.

The focal point for organization structure activity in the Office of the Secretary of Defense is an element in my office known as the Office of Organizations and Management Planning (OMP).

The Organization and Management Planning Office has been in on many of the DoD major organizational structure changes of recent years to a greater or lesser degree (usually greater, and more often than not as the prime mover for actions leading to organizational decisions by the Secretary of Defense).

What and Why is Organization Planning?

Organization planning is that activity by which a manager seeks to maintain the most efficient and economical relationship between his mission and the organization he controls to carry out this mission. Put another way, *organization planning* means keeping the organization structure adjusted to most efficiently accomplish the mission.

The organization function is inherent in every manager's package of responsibilities, but seldom does it receive either the quantity of attention or the quality of attention it needs to make it really effective. True, every organization gets looked at from time to time—perhaps when a crisis situation dictates or when things get so bad that the problem cannot be avoided—but for a real payoff the entire organization structure and operation must be kept under constant scrutiny. The mission is constantly changing as is the environment in which it is to be accomplished, so it follows that the organization structure must constantly evolve in order to keep pace.

The manager of a large organization simply does not have the time to devote that his organization responsibility requires. Without full-time attention, however, little inefficiencies creep in, and over the course of time these little inefficiencies become gross inefficiencies. Without the manager's direction it cannot be expected that the organization will automatically adjust itself to gain in efficiency. In the "going organization" there is a tendency to resist change, a preference to stick to the "tried and true" rather than face the risk of organizational innovation, and there are invariably vested interests in the organizational status quo. The impetus must come from the top if the broad gauge, bold and imaginative organizational innovations which result in big savings are to be achieved. If the manager doesn't have sufficient personal time for exercising his organization responsibility he should get some full time expert assistance on this most important area as Secretary McNamara has done. By no means should this responsibility be left unattended.

Industry Ahead in Planning

American industry has been substantially ahead of government practice in recognizing the importance of the *organization planning* function. As a function on its own right *organization planning* appears to date in industry from the late 1930's, but did not gain widespread recognition until the late 1940's and early 1950's. Today it is rare to find a large corporation without an *organization planning* group. In some enterprises the *organization planning* element is the focal point for all enterprise planning; in others, the function is limited to organizational structure design; and in still others, organization planners both design the structure and participate in selecting the personnel to occupy key organizational positions.

Though *organization planning* means different things in different companies, there is always the common element of full-time focus on organizational structure. Typically the organization planning staff is small, well versed in company objectives and management philosophy, keenly dedicated to management efficiency, and almost invariably located near the top in the organizational hierarchy. The Defense Department Organization and Management Planning Staff, reporting directly to me, addresses problems of overall organizational structure and functional responsibility assignments on a full-time basis. The staff is small consisting of 7 highly qualified military officers (3 Army, 2 Navy and 2 Air Force).

Organization Planning in DOD

Early in his tenure as Secretary of Defense, Mr. McNamara asked: "Who in the Department of Defense looks critically and analytically at the *overall* organizational structure?" The response to this question revealed that no one was engaged in this task on a full-time basis. It was at that point in time that the Office of Organization and Management Planning came into being.

Underlying organizational structure activity in the Defense Department, the Secretary has statutory authority to "take appropriate steps (including the transfer, reassignment, abolition, and consolidation of functions) to provide in the Department of Defense for more effective, efficient, and economical administration and operation and to eliminate duplication." This authority was underlined by President Kennedy in his initial charge to Secretary McNamara "to determine what forces are required and to procure and support them as economically as possible."

One of the initial actions of the organization planners in Defense was to establish a set of criteria by which organizational change proposals could be evaluated. The following three criteria, which were enunciated early in the game by Secretary McNamara, remain valid as the standards against which we evaluate the need for organizational change.

1. Does the proposed change better the support provided to our combatant forces, thus increasing their combat effectiveness?
2. Does the proposed change improve the decision-making process, particularly time lag where possible?
3. Does the proposed change reduce undesirable duplication and promote efficiency and economy?

Grist For The Mill

Where do organizational change proposals come from? There are a number of sources. They might originate with the Secretary of Defense personally. They might originate with the Secretary's principal subordinates as formal recommendations. They might be the product of fertile minds anywhere in the Department expressed as employee suggestions—your ideas. They might even be suggestions from outside the Defense Department. Or, they might be the resulting product of brainstorming by the *organization planning* staffers. Promising proposals find their way into initiatives lists which are prepared from time to time for the purpose of securing the blessings of the Secretary of Defense for further study.

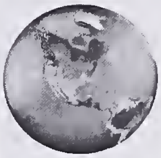
Once a proposal is formalized it can be approached in several ways—it can be studied by the organization planners—it can be given to the agency involved for further study and recommendation—or it might result in the establishment of an OSD Study Group for further study and recommendations. Whatever the approach, there is much work between proposal and presentation to the Secretary of Defense for decision. Nor should it be concluded that the work is at an end when the decision has been made. Many hours of effort are required in helping out with the implementation of organizational changes.

A new organization needs to be nurtured to some extent until it is strong enough to stand alone. Accordingly, my office maintains an interest in new organizational entities until they are well established.

In Conclusion

In this brief sketch I have pointed out that there have been substantial cost reduction savings stemming directly from formal *organization planning*, and I have further indicated that possibilities for further cost reduction opportunities exist. Our experience over the last 5 years supports a long-held view of mine—if you can do it better it is most likely you can also do it for less. ☐

BASES & INSTALLATIONS



SINCE 1961, CONSOLIDATION, REDUCTION OR CLOSURE ACTIONS INITIATED AT 862 LOCATIONS. WHEN COMPLETED THESE ACTIONS WILL PRODUCE THE FOLLOWING:

RESULTS

REAL ESTATE RELEASED...1,740,000 ACRES
INDUSTRIAL PLANTS FOR SALE....66 PLANTS
JOBS RELOCATED.........168,368
JOBS ELIMINATED....... 200,001

ANNUAL SAVINGS $1.44 BILLION

> Efficiency of a practically flawless kind may be reached naturally in the struggle for bread. But there is something beyond—a higher point, a subtle and unmistakable touch of love and pride beyond mere skill; almost an inspiration which gives to all work that finish which is almost art—which is art.
>
> *Joseph Conrad*

PRESIDENT HONORS COST REDUCERS

President Lyndon B. Johnson presented Certificates of Merit to 17 individuals whose achievements contributed significantly to the Department of Defense Cost Reduction Program during Fiscal Year 1966 in a ceremony on the Pentagon Concourse on Tuesday, July 12.

The President made the presentations on a stage at the south end of the Concourse. He was accompanied by Deputy Secretary of Defense Cyrus Vance, Assistant Secretary of Defense (Installations and Logistics) Paul R. Ignatius, the Secretaries of the Army, Navy, and Air Force, members of the Joint Chiefs of Staff, and other high ranking civilian and military officials of the Department of Defense.

The awards ceremony was the highlight of Cost Reduction Week, observed July 11–15 throughout the Department of Defense to recognize the efforts of the thousands of civilian and military personnel who contributed to the $4.5 billion in savings achieved through cost reducing actions in Fiscal Year 1966. The observance focused attention on the actions required to attain the Department goal of saving $6.1 billion annually by Fiscal Year 1969 and each year thereafter.

The 17 individuals from among the Military Departments and the Defense Supply Agency who received Certificates of Merit are representative of the thousands of Defense employees who participated in Defense cost-saving actions.

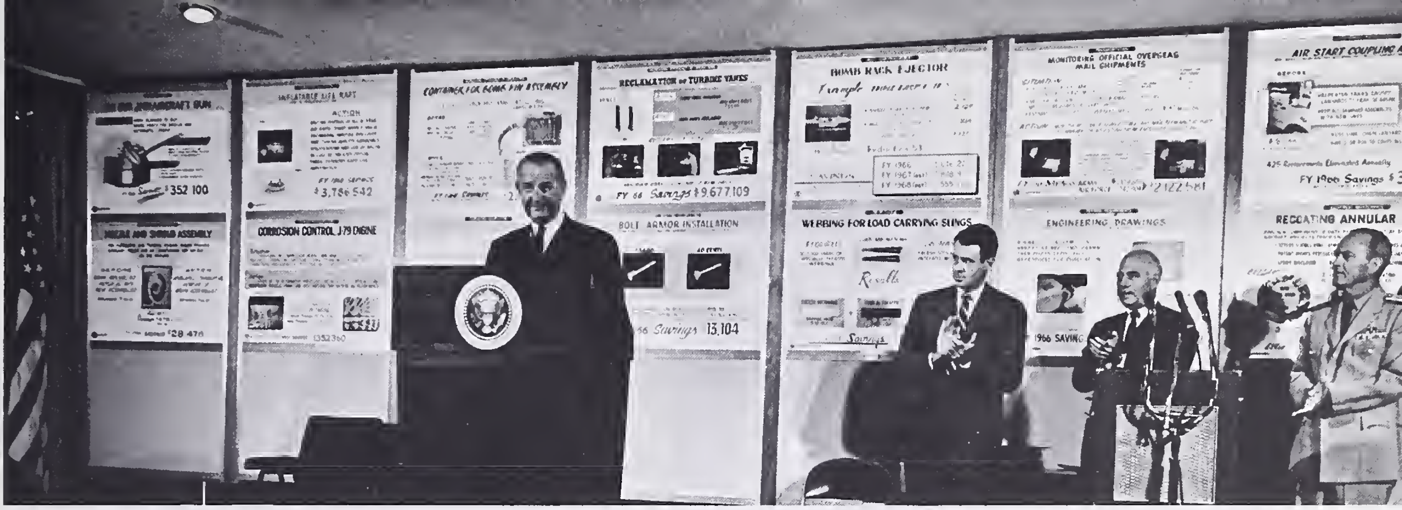
The contributions of the 17 covered a wide spectrum both in category of effort and dollar amounts, ranging from a near 99 percent reduction in the cost of special bolts for Army aircraft to a more than $9.5 million reduction in equipment maintenance on Navy aircraft engines by devising a method to reclaim engine parts. □

Corridors are jammed as the President and Secretary Vance commence their walk to the Pentagon Concourse.

Audience applauds President en route to podium through packed concourse.

Awardees clench hands and tense lips as they await their turn on stage.

Saundra Tucker (left) and Jan Kleinman, secretaries in the OSD Cost Reduction Directorate, listen intently to the President's address.



Posters depicting cost reduction actions for which awards are to be presented serve as a background for the Presidential Address and awards ceremony. At the President's left are: Cyrus Vance, Deputy Secretary of Defense; Paul R. Ignatius, Assistant Secretary of Defense for Installations and Logistics; and Admiral David L. McDonald, Chief of Naval Operations.

Photo at left shows the President pausing to shake hands with two young cost reduction enthusiasts. Photo at right shows reaction of one in the wake of a Presidential grip. Pleased father, John Maddox of the OSD staff, watches son tape coveted spot on hand.

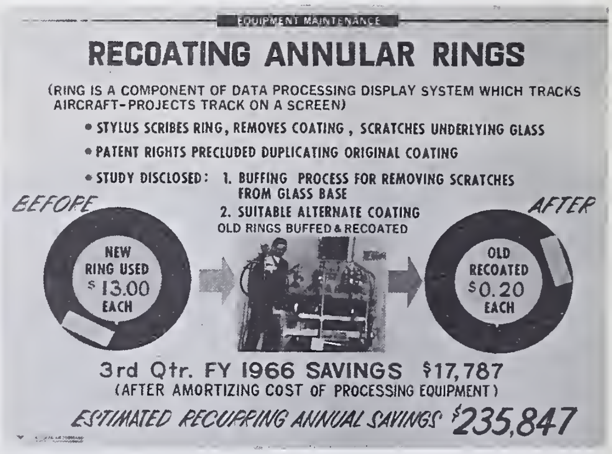
Department of the Navy Cost Reduction Program "Certificate of Merit" recipients meet with the Honorable Robert H. B. Baldwin, UNSECNAV, at a morning coffee during Defense Cost Reduction Week, July 1966. L to R: VADM I. J. Galantin, CNM; Mr. J. A. Quinn; Mr. C. E. Hull; Hon. R. H. B. Baldwin; Mrs. Vivian Lewis; RADM S. R. Sherwood; Mr. A. J. Gambale; Hon. G. C. Bannerman, ASTSECNAVINSLOG; RADM A. M. Shinn.

Recipients of Cost Reduction Awards

Presented By

PRESIDENT LYNDON B. JOHNSON
At the Pentagon
July 12, 1966

Msgt Royal E. Carpenter, Elmendorf Air Force Base, Alaska



EQUIPMENT MAINTENANCE

RECOATING ANNULAR RINGS

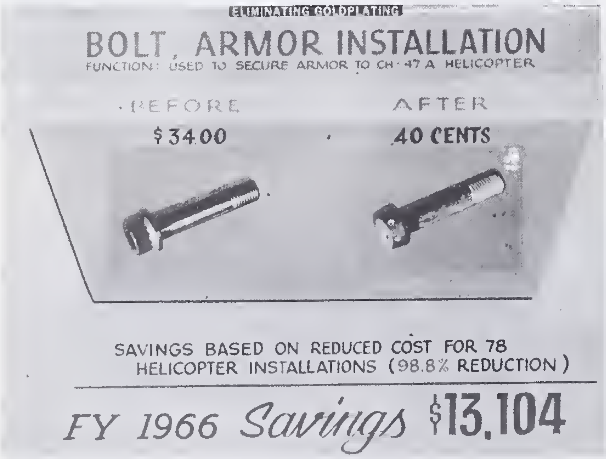
(RING IS A COMPONENT OF DATA PROCESSING DISPLAY SYSTEM WHICH TRACKS AIRCRAFT-PROJECTS TRACK ON A SCREEN)

- STYLUS SCRIBES RING, REMOVES COATING, SCRATCHES UNDERLYING GLASS
- PATENT RIGHTS PRECLUDED DUPLICATING ORIGINAL COATING
- STUDY DISCLOSED: 1. BUFFING PROCESS FOR REMOVING SCRATCHES FROM GLASS BASE
  2. SUITABLE ALTERNATE COATING

OLD RINGS BUFFED & RECOATED

3rd Qtr. FY 1966 SAVINGS $17,787
(AFTER AMORTIZING COST OF PROCESSING EQUIPMENT)

ESTIMATED RECURRING ANNUAL SAVINGS $235,847



ELIMINATING GOLDPLATING

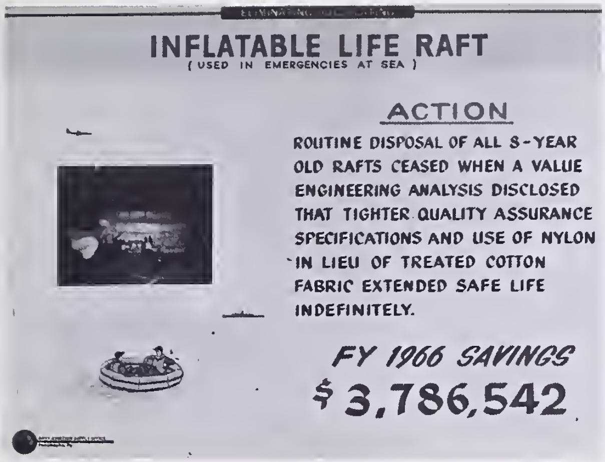
BOLT, ARMOR INSTALLATION
FUNCTION: USED TO SECURE ARMOR TO CH-47 A HELICOPTER

BEFORE
$34.00
AFTER
40 CENTS

SAVINGS BASED ON REDUCED COST FOR 78 HELICOPTER INSTALLATIONS (98.8% REDUCTION)

FY 1966 Savings $13,104

Mr. Sherman M. King, New Cumberland Army Depot, Pennsylvania



INFLATABLE LIFE RAFT

(USED IN EMERGENCIES AT SEA)

ACTION

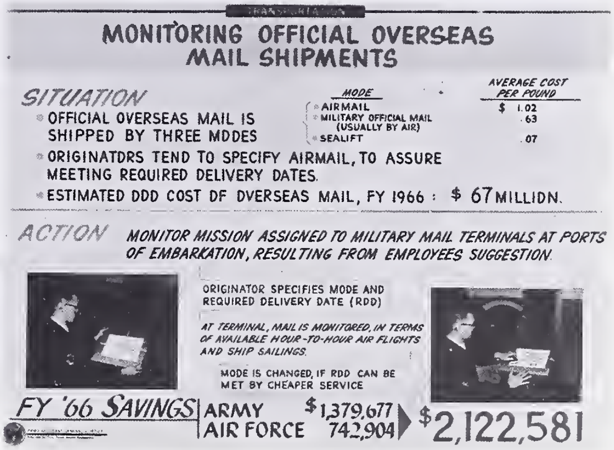
ROUTINE DISPOSAL OF ALL 8-YEAR OLD RAFTS CEASED WHEN A VALUE ENGINEERING ANALYSIS DISCLOSED THAT TIGHTER QUALITY ASSURANCE SPECIFICATIONS AND USE OF NYLON IN LIEU OF TREATED COTTON FABRIC EXTENDED SAFE LIFE INDEFINITELY.

FY 1966 SAVINGS

$ 3,786,542

Mr. Anthony J. Gamble, Navy Aviation Supply Office, Philadelphia, Pa.

Mr. John W. Gane, U.S. Army Adjutant General's Office, Washington, D.C.



TRANSPORTATION

MONITORING OFFICIAL OVERSEAS MAIL SHIPMENTS

SITUATION

- OFFICIAL OVERSEAS MAIL IS SHIPPED BY THREE MODES

MODE	AVERAGE COST PER POUND
AIRMAIL	$ 1.02
MILITARY OFFICIAL MAIL (USUALLY BY AIR)	.63
SEALIFT	.07

- ORIGINATORS TEND TO SPECIFY AIRMAIL, TO ASSURE MEETING REQUIRED DELIVERY DATES.
- ESTIMATED DOD COST OF OVERSEAS MAIL, FY 1966 : $ 67 MILLION.

ACTION

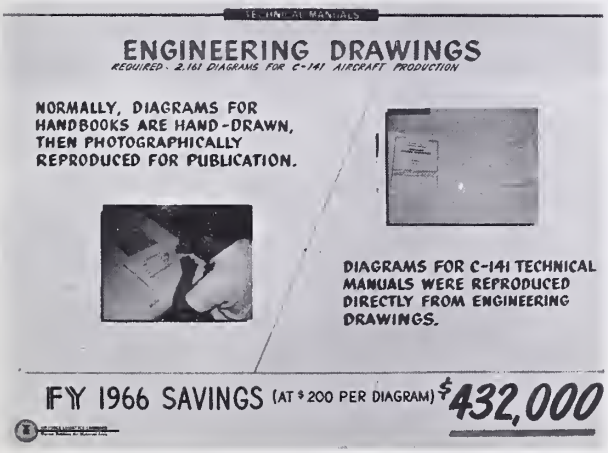
MONITOR MISSION ASSIGNED TO MILITARY MAIL TERMINALS AT PORTS OF EMBARKATION, RESULTING FROM EMPLOYEES SUGGESTION.

ORIGINATOR SPECIFIES MODE AND REQUIRED DELIVERY DATE (RDD)

AT TERMINAL, MAIL IS MONITORED, IN TERMS OF AVAILABLE HOUR-TO-HOUR AIR FLIGHTS AND SHIP SAILINGS.

MODE IS CHANGED, IF RDD CAN BE MET BY CHEAPER SERVICE

FY '66 SAVINGS		
ARMY	$1,379,677	
AIR FORCE	742,904	$2,122,581



TECHNICAL MANUALS

ENGINEERING DRAWINGS

REQUIRED: 2,161 DIAGRAMS FOR C-141 AIRCRAFT PRODUCTION

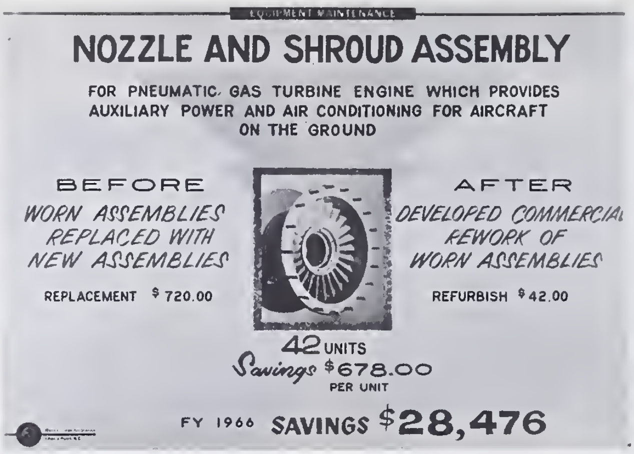
NORMALLY, DIAGRAMS FOR HANDBOOKS ARE HAND-DRAWN, THEN PHOTOGRAPHICALLY REPRODUCED FOR PUBLICATION.

DIAGRAMS FOR C-141 TECHNICAL MANUALS WERE REPRODUCED DIRECTLY FROM ENGINEERING DRAWINGS.

FY 1966 SAVINGS (AT $200 PER DIAGRAM) $432,000

Mr. Robert A. Belote, Warner Robins Air Materiel Area, Macon, Ga.

Mrs. Vivian D. Lewis, Marine Corps Air Station, Cherry Point, N.C.



EQUIPMENT MAINTENANCE

NOZZLE AND SHROUD ASSEMBLY

FOR PNEUMATIC GAS TURBINE ENGINE WHICH PROVIDES AUXILIARY POWER AND AIR CONDITIONING FOR AIRCRAFT ON THE GROUND

BEFORE
WORN ASSEMBLIES REPLACED WITH NEW ASSEMBLIES
REPLACEMENT $ 720.00

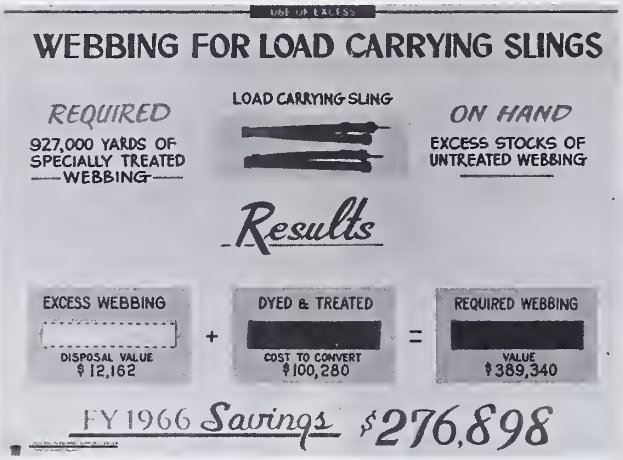
AFTER
DEVELOPED COMMERCIAL REWORK OF WORN ASSEMBLIES
REFURBISH $ 42.00

42 UNITS
Savings $678.00 PER UNIT

FY 1966 SAVINGS $28,476

Mr. Claud E. Hull, Marine Corps Air Station, Cherry Point, N.C.

Mr. Nathan Legman, Defense Personnel Support Center, Philadelphia, Pa.



USE OF EXCESS

WEBBING FOR LOAD CARRYING SLINGS

REQUIRED
927,000 YARDS OF SPECIALLY TREATED WEBBING

LOAD CARRYING SLING

ON HAND
EXCESS STOCKS OF UNTREATED WEBBING

Results

EXCESS WEBBING
DISPOSAL VALUE $ 12,162

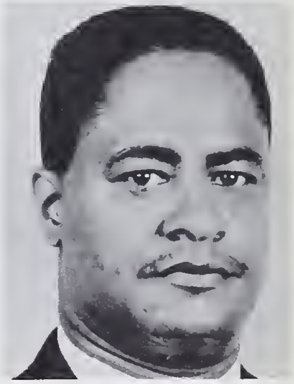
+

DYED & TREATED
COST TO CONVERT $100,280

=

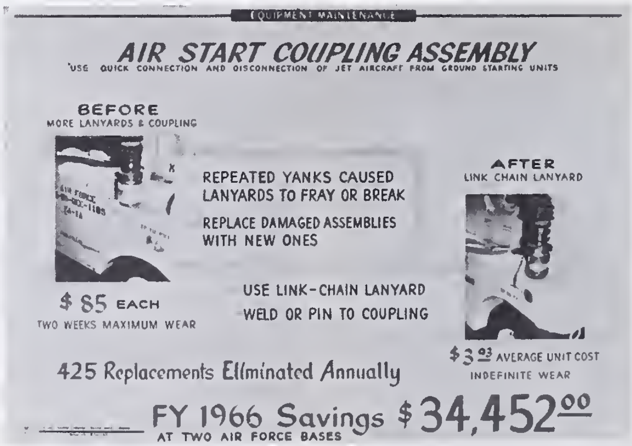
REQUIRED WEBBING
VALUE $389,340

FY 1966 Savings $276,898



Mr. John I. Hoston, Defense Personnel Support Center, Philadelphia, Pa.

Ssgt Barrington Hamilton, Williams Air Force Base, Arizona



EQUIPMENT MAINTENANCE

AIR START COUPLING ASSEMBLY

USE QUICK CONNECTION AND DISCONNECTION OF JET AIRCRAFT FROM GROUND STARTING UNITS

BEFORE
MORE LANYARDS & COUPLING

REPEATED YANKS CAUSED LANYARDS TO FRAY OR BREAK

REPLACE DAMAGED ASSEMBLIES WITH NEW ONES

$ 85 EACH
TWO WEEKS MAXIMUM WEAR

USE LINK-CHAIN LANYARD
WELD OR PIN TO COUPLING

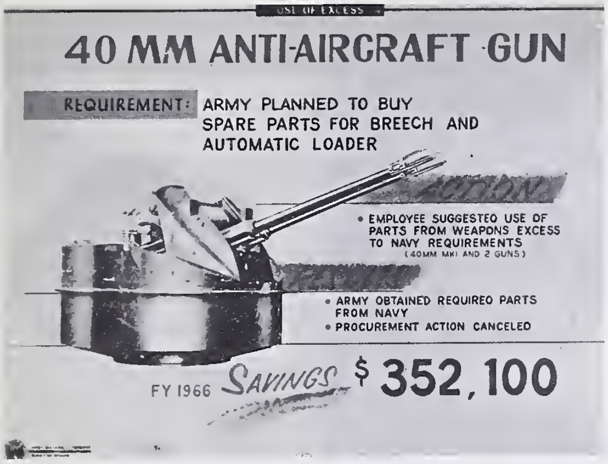
AFTER
LINK CHAIN LANYARD

$ 3.03 AVERAGE UNIT COST
INDEFINITE WEAR

425 Replacements Eliminated Annually

FY 1966 Savings $ 34,452.00
AT TWO AIR FORCE BASES

Mr. Glenn J. Cunningham, McGuire Air Force Base, New Jersey



USE OF EXCESS

40 MM ANTI-AIRCRAFT GUN

REQUIREMENT: ARMY PLANNED TO BUY SPARE PARTS FOR BREECH AND AUTOMATIC LOADER

ACTION

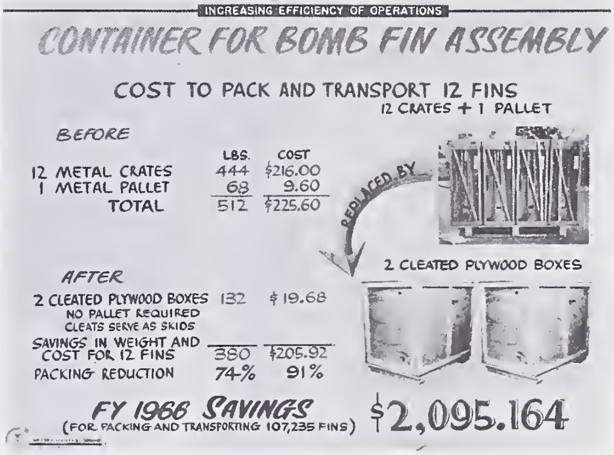
- EMPLOYEE SUGGESTED USE OF PARTS FROM WEAPONS EXCESS TO NAVY REQUIREMENTS (40MM MKI AND 2 GUNS)

- ARMY OBTAINED REQUIRED PARTS FROM NAVY
- PROCUREMENT ACTION CANCELED

FY 1966 SAVINGS $ 352,100

Mr. FREDERICK J. MEINEKER,
Watervliet Arsenal, Watervliet, N.Y.

Mr. J. ROBERT BENNETT,
Ogden Air Materiel Area,
Ogden, Utah



INCREASING EFFICIENCY OF OPERATIONS

CONTAINER FOR BOMB FIN ASSEMBLY

COST TO PACK AND TRANSPORT 12 FINS

12 CRATES + 1 PALLET

REPLACED BY

2 CLEATED PLYWOOD BOXES

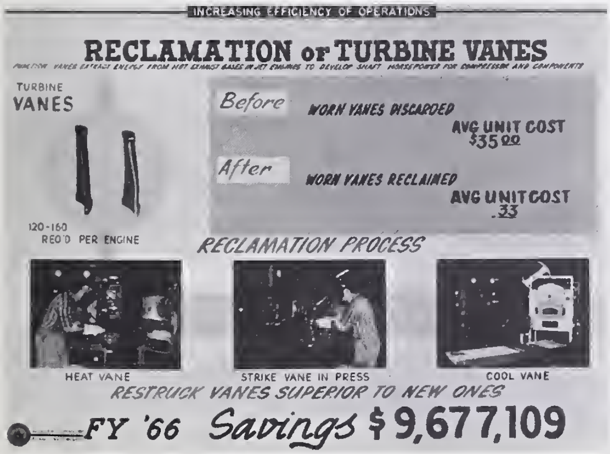
BEFORE

	LBS.	COST
12 METAL CRATES	444	$216.00
1 METAL PALLET	68	9.60
TOTAL	512	$225.60

AFTER

2 CLEATED PLYWOOD BOXES NO PALLET REQUIRED CLEATS SERVE AS SKIDS	132	$19.68
SAVINGS IN WEIGHT AND COST FOR 12 FINS	380	$205.92
PACKING REDUCTION	74%	91%

FY 1966 SAVINGS (FOR PACKING AND TRANSPORTING 107,235 FINS) $2,095.164



INCREASING EFFICIENCY OF OPERATIONS

RECLAMATION OF TURBINE VANES

FUNCTION: VANES EXTRACT ENERGY FROM HOT EXHAUST GASES IN JET ENGINES TO DEVELOP SHAFT HORSEPOWER FOR COMPRESSOR AND COMPONENTS

TURBINE VANES

120-160 REQ'D PER ENGINE

Before WORN VANES DISCARDED AVG UNIT COST $35.00

After WORN VANES RECLAIMED AVG UNIT COST .33

RECLAMATION PROCESS

HEAT VANE

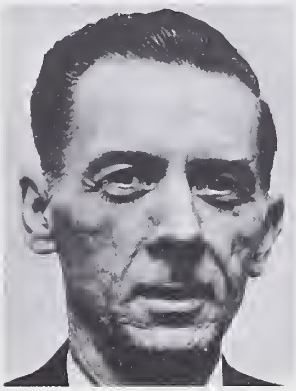
STRIKE VANE IN PRESS

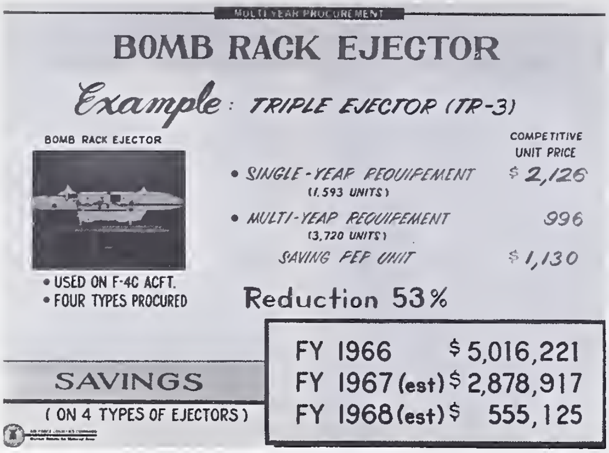
COOL VANE

RESTRUCK VANES SUPERIOR TO NEW ONES

FY '66 Savings $9,677,109

Mr. JOHN A. QUINN, Jr.,
Naval Air Systems Command,
Washington, D.C.





MULTI YEAR PROCUREMENT

BOMB RACK EJECTOR

Example: TRIPLE EJECTOR (TR-3)

BOMB RACK EJECTOR

- USED ON F-4C ACFT.
- FOUR TYPES PROCURED

	COMPETITIVE UNIT PRICE
• SINGLE-YEAR REQUIREMENT (1,593 UNITS)	$ 2,126
• MULTI-YEAR REQUIREMENT (3,720 UNITS)	996
SAVING PER UNIT	$ 1,130

Reduction 53%

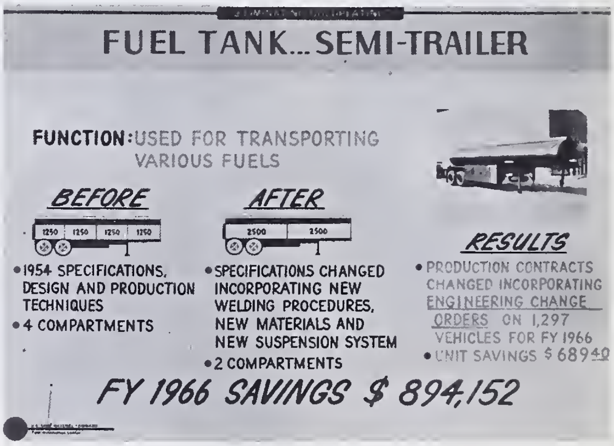
SAVINGS

(ON 4 TYPES OF EJECTORS)

FY 1966	$ 5,016,221
FY 1967 (est)	$ 2,878,917
FY 1968 (est)	$ 555,125

Mrs. Margaret R. Countryman, Warner Robins Air Materiel Area, Macon, Ga.

Mr. Ronald McCullough, U.S. Army Tank Automotive Center, Warren, Mich.



FUEL TANK...SEMI-TRAILER

FUNCTION: USED FOR TRANSPORTING VARIOUS FUELS

BEFORE

1250
1250
1250
1250

- 1954 SPECIFICATIONS, DESIGN AND PRODUCTION TECHNIQUES
- 4 COMPARTMENTS

AFTER

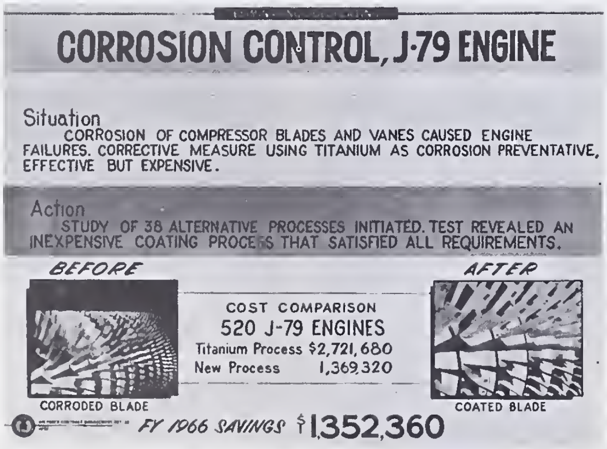
2500
2500

- SPECIFICATIONS CHANGED INCORPORATING NEW WELDING PROCEDURES, NEW MATERIALS AND NEW SUSPENSION SYSTEM
- 2 COMPARTMENTS

RESULTS

- PRODUCTION CONTRACTS CHANGED INCORPORATING ENGINEERING CHANGE ORDERS ON 1,297 VEHICLES FOR FY 1966
- UNIT SAVINGS $ 689.40

FY 1966 SAVINGS $ 894,152



CORROSION CONTROL, J-79 ENGINE

Situation

CORROSION OF COMPRESSOR BLADES AND VANES CAUSED ENGINE FAILURES. CORRECTIVE MEASURE USING TITANIUM AS CORROSION PREVENTATIVE, EFFECTIVE BUT EXPENSIVE.

Action

STUDY OF 38 ALTERNATIVE PROCESSES INITIATED. TEST REVEALED AN INEXPENSIVE COATING PROCESS THAT SATISFIED ALL REQUIREMENTS.

BEFORE

CORRODED BLADE

COST COMPARISON

520 J-79 ENGINES

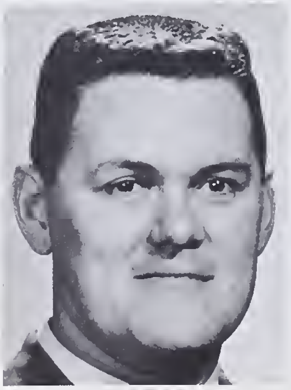
Titanium Process	$2,721,680
New Process	1,369,320

AFTER

COATED BLADE

FY 1966 SAVINGS $1,352,360

Capt. Robert E. Gorman, Air Force Plant Representative Office, Cincinnati, Ohio



An Overview

Retention of Navy and Marine Corps Personnel

Task Force Efforts and Findings

By **ROBERT H. B. BALDWIN**
Under Secretary of the Navy

The ever-increasing advance of technology with the attendant increase in complexity of materiel and weaponry associated with seapower amplifies the U.S. Navy's need for high quality officers and enlisted personnel. In endeavoring to satisfy this fundamental need the Navy finds itself in direct competition with: (1) a burgeoning and prospering civilian economy, (2) increasingly attractive civilian pursuits, (3) other government agencies, and (4) the other armed services. Recognizing the Navy's increasingly difficult position in this area the Secretary of the Navy in December of 1964 established a Policy Board and supporting Task Force to examine in depth the problem of Navy/Marine Corps personnel retention.

Overall Considerations

It was clear at the outset that the Task Force could not, within the scope of its charter, undertake the development of a full repertoire of new analytical techniques in an area in which little rigorous statistical analysis had been carried out previously. Therefore, the Task Force concentrated on the sensible use and interpretation of what was available and limited itself to the development of new techniques only in those areas where results could be obtained within the prescribed time frame established by the Secretary of the Navy.

In a full analysis of retention, consideration must be given to the number and skill level of the different ratings or designators that the Navy needs to fulfill its mission, the comparison of these requirements with present inventory, the way these requirements may change in the future, the reasonableness of the promotion flow, the availability of personnel inputs to the Navy, and the effect on personnel force structure of changes in the retention rate. All of these factors have complex interrelationships, some of which operate on the problem immediately, and some of which take effect in the long term. For example, the relationship between the length and complexity of the manpower pipeline and imprecision in forecasting long-range requirements may slowly lead to imblances that are difficult to overcome through control of retention rates alone. It is unfortunately true that the retention problem is not subject to immediate and total correction, and that the full effect of many recommendations developed by the Task Force and approved by the Secretary of the Navy will not be evident for several years.

Ideally, one would like to treat both the *causes* and *effects* of the retention problem in quantitative terms. The Task Force was faced, however, with the fact that the *causes* of the problem are interwoven with questions of psychological behavior. *Its* effects on Fleet Readiness—as a particular example—lie in areas where existing data and mathematical techniques were inadequate for full cost-effectiveness treatment.

One of the Task Force's findings is that the retention problem is selective and severe in both officer and enlisted communities. Some of these specific problem areas lend themselves to solution by actions directed to the specific problem such as significantly enhancing the training and thus the motivation of junior officers accepted to the surface line, while others lend themselves to general application affecting the entire Naval Establishment or to large groups of personnel. An example of this type of recommendation is one calling for a major revamping of sea pay which would be presented to officers and enlisted personnel based on their accumulative length of service at sea.

Enlisted Retention Considerations

It is necessary to be specific in determining the nature and extent of enlisted manpower shortages. Gross comparisons between total men on board and total requirements, or quotations of average reenlistment rates, do not produce an optimum basis for recommendations. A close look at each of the subgroups that are manageable in themselves, and that together make up the total population, is necessary.

Since the pay grade that a man achieves in a given number of years is dependent on the promotion flow for his particular rating, rather than his length of service, it is theoretically possible to satisfy numerical requirements by merely promoting men faster. Obviously such a solution does not meet the real life requirement for men of various skill and experience levels, but it does indicate the difficulty of plotting an actual requirements line for direct comparison with the inventory and for ready determination of the desired continuance reenlistment rate.

The Task Force discovered that reenlistment in its various aspects comprises only 3 of about 16 ways in which the total enlisted inventory, or any specific part of the inventory, carries over or changes from year-to-year in the continuum of the Navy's available enlisted work force.

The Task Force therefore directed its attention to "continuance" which is defined for any given year of service as the ratio of the residual inventory to the inventory at preceding year end expressed as a percentage. Viewed in this way, the "career force," if one wishes so to label the enlisted population with over 4 years of service, was found to be growing in many of the 65 ratings in our rating structure.

In evaluating the career ratios that will be produced by current continuance rates, then comparing them with career ratios that the Navy has established, it was apparent, however, that few of these goals will be achieved. Many ratings have a 55% career ratio, but this would require a 55% continuance rate at the 4–5 year point, which is significantly greater than most continuance rates at present.

To be meaningful, these data must, of course, be considered in their relation to requirements. The past history of constantly and rapidly rising requirements for electronic technicians, for example, tends to dampen any elation over the rising inventory. Further, one's inability to forecast long-term *commitments* and resulting requirements with certainty can lead to rating structure imbalances that may be very difficult to overcome.

Officer Retention Considerations

Although there are differences in nearly all of the officer communities between stated requirements and numbers available, in certain of the communities the situation is so badly out of balance as to be critical.

The retention situation is particularly severe in the junior and middle grades of the surface line. The situation is perhaps in some ways more aggravated than that which typifies the enlisted structure. The shortage of young line lieutenants shows no indication that it can correct itself. Other categories of officers reflect these difficulties in varying degrees particularly in the aviation line in the rank of lieutenant (jg) and lieutenant; in the Engineering duty officer community in the rank of commander; in the law specialist community in the rank of lieutenant commander; in the Medical Corps in the rank of commander; in the Dental Corps in the rank of lieutenant commander and commander; in the Supply Corps in the rank of lieutenant commander; and in the Civil Engineering Corps in the rank of lieutenant and lieutenant commander.

Qualitatively the problem is equally acute. The need for middle grade officers, combined with the inability of the Navy to retain a sufficient number of officers beyond obligated service, has tended to reduce selectivity and has resulted in only token attrition up to the grade of commander. Such loss of selectivity exerts undesirable side effects.

The advance of naval technology is further aggravating the qualitative problem. In the 20 years since the end of World War II, Navy ships and aircraft, their propulsion plants, their sensors, and their weapons systems have become vastly more complex. This requires an ever-increasing level of technical knowledge and competency among the officers charged with the design, program management, production, testing, and the actual operation and maintenance of the equipment in the Fleet. For example, a solid knowledge of the World War II 5-inch, 38-caliber gun with its accompanying fire control system and sensors was relatively easy to attain; a solid knowledge of the modern Terrier, Tartar, or Talos missile system with its accompanying weapons direction system, guidance systems, control systems, and sensors is much more difficult to attain. Therefore, if all else were constant, qualitative improvement is clearly indicated in the officers corps to accommodate advancing technology.

Such qualitative improvement depends not only on an increase in selectivity, but to a major extent depends on improved personnel management in the areas of education, utilization, promotion, and career planning.

Manpower Management Function

As the Task Force continued to analyze the inadequacies of current personnel ratios in both scope and depth, it came to recognize the importance of evaluating the retention situation within the broader context of the overall manpower management function.

Initially the retention problem was approached by the Task Force from that general standard by which it has been traditionally accepted and defined in all military services. Differences that have arisen between written requirements and actual strength, have in the past led to the inference that there is a direct casual relationship between deficiencies and retention. This inference can be supported by the information generally available, including the results of various kinds of surveys.

As the problem was subjected to deeper scrutiny however, it was obvious that measures of overall retention or shortages, while useful, do not, by themselves, provide a completely solid basis for either defining or resolving our difficulties. Analysis of retention has to start from a statement of the number and skill levels of personnel by rating that we would wish to retain under ideal conditions.

These retention patterns can be calculated, however, only by introducing factors such as (a) the current requirements and grade structure, (b) the range within which promotion points can be permitted to fluctuate, and (c) the availability of personnel inputs to the rating. Complex interactions occur among these factors and definitive data to quantify them is not entirely adequate. Many of the qualitative features of the problem could not be addressed at all.

Considerations of Cost of Retention

Retaining, or failing to retain, officers and men in the Navy has a cost both in terms of dollars and in terms of readiness and effectiveness. Both of these costs must be considered in the decision making process.

An increase in retention will result in temporary increase in total dollar costs, if the total force size remains constant. Although such factors as schooling and instruction outlays decrease as retention increases, these savings are counteracted by the higher costs of pay for a larger career force and by the retirement costs of the increased number of men who become entitled to retirement benefits. Once the career force structure produces a steady state, however, the cost of achieving this increased retention would then diminish by a reduction in the requirements for juniors to fill the training pipeline, quality selectivity of personnel, greater professional output per input and reduced training requirements.

These facts emphasize the necessity for careful evaluation and definition of retention goals. The retention of more men than needed would result in higher costs, and produce more trained men than can be effectively utilized, thereby producing promotion stagnation, with resultant frustrations for the individual and a resurgence of retention problems.

On the other hand, insufficient retention leads to a high turnover of personnel without the Navy receiving adequate returns on its training investment; insufficient retention leads also to instability and lowered effectiveness.

The requirement for highly trained technical personnel in the Navy continues to grow. The failure to reenlist sufficient number of these personnel complicates the problem because of the long period of training and experience required before technicians begin to be fully productive. Depending on the complexity of the skill involved, it may take a man several years to be fully capable of doing the work required, and in such cases, the cost *per productive man-year* will usually decrease as retention increases, even though pure dollar cost increases.

Task Force Recommendations

Ideally, in order to fully evaluate each recommendation advocated by the Task Force, one would wish to have available the potential of all information elements and analytical devices that could be developed and utilized. As in most real world problems, this ideal cannot be realized unless the service is prepared to wait several years before acting.

Recognizing the need for immediate action while facing the question of what corrective measures could be instituted without undue risk of creating problems downstream, the Secretary of the Navy approved 115 of the recommendations born of the Task Force effort, 19 of which have already been implemented. Of the remainder, 85 are now in the process of implementation, while 11 are in necessary preparatory stages which must precede implementation action. A large number of these recommendations are based on the Navy's moral obligation as an employer to meet required standards of social and ethical behavior. There is a limit to the degree to which human resources should be exploited whether or not the cost-benefit relationships can be quantified.

Continued on page 56

Pier leased to commercial king crab fishing companies at NAVSTA Adak.

NAVY OUTLEASING PROGRAM

In managing the Navy's real property, the Naval Facilities Engineering Command follows a policy of outleasing all property required for military purposes which permits a secondary use. Approximately 180,000 acres, including in some cases Navy facilities, are so outleased resulting in a cash return of approximately $3,000,000 annually. There is also a savings in maintenance costs of around $1,500,000 annually, of which approximately $150,000 is reportable under the Cost Reduction Program. There is a restriction against outlease of agricultural land for the production of price-supported crops.

Farmers grow pineapples, sugar cane, beans, tomatoes, squash, cabbage, cucumbers and cranberries on Navy land. Agricultural land is also outleased for grazing purposes. Lessees pay cash rent for the privilege, assume maintenance costs that otherwise the Navy would have to pay, and implement soil conservation practices to actually improve the land. Fishermen, airlines, oil companies lease Navy property under conditions insuring the maintenance of the property and a fair rental return. However, the cash return and the maintenance savings are only a part of the benefits resulting from this policy. There are benefits flowing to the civilian economy—some of which take unusual forms.

For instance, natural tree and bush growth was encroaching onto aircraft approach zone areas at NAS, Brunswick, Maine. Maintaining the approximately 260 acres in question involved application of herbicides and brush cutting—all at government expense—to meet airfield safety standards. The land was leased to a blueberry producer for a flat rental of $100 per year plus $0.0329 per pound of field weight of blueberries produced. A conservative estimate is a return of 100 tons per year or approximately $6,500. Since the blueberry bushes range from 6 to 12 inches in height, there are now no hazards to aviation.

The culture of these plants has some fascinating features. In the first place, low-bush blueberry plants have never been successfully planted. They reproduce through natural progression of underground rhizomes. The area where the air station is situated was at one time a very productive blueberry area, and where the soil cover is not extensively disturbed the plants should continue to thrive provided that competing natural vegetation is controlled. Accordingly, the producer burns the area each year using a mechanized oil-fired burner. The operation is performed while the ground is frozen to prevent soil and root damage.

The end result of the transaction is that the acreage is maintained at no expense to the Navy; the government receives a cash return; the blueberry bushes provide an excellent ground cover for erosion control and the civilian economy benefits.

The Navy has some installations in the Aleutian chain which are not presently in use but are required to be maintained in a standby status. Other installations are excess to the Navy's needs but must be maintained pending disposition.

The Alaska king crab industry relies heavily on some of these facilities. This industry is relatively new. Formerly, the departure of the salmon and halibut boats in early fall meant a slump in Alaska fishing communities. The king crab fishing is a year-round proposition and the fishing towns are thriving. Some of the crab are processed aboard special freezer vessels. Others are taken ashore in Alaska for processing.

A 5-year lease beginning January 1, 1965, for $5,051 per year, was entered into with one processor covering approximately 4 acres of land, three buildings and a portion of the Approach Pier at Finger Bay, U.S. Naval Station, Adak, Alaska. The lessee moors the M/V *Theresa Lee* at the pier to process the king crab brought in by the several catcher boats which operate in the Adak area. The buildings ashore are used for storage of gear and housing. In addition, several other crab processing ships use the Finger Bay pier for the same purpose under licenses, which usually run from about September 15 to April 15 each year.

A similar 5-year lease, beginning May 1, 1966, for $1,200 per year has been entered into for use of a pier and two buildings at Dutch Harbor, Alaska, and another lease with the same lessee beginning April 1, 1966, for $3,936 per year for the use of a marine railway at Dutch Harbor. The marine railway has been rehabilitated and is available for the repair of any and all fishing and crabbing boats which may become disabled in the western Aleutian area. The nearest available drydock is at Kodiak, Alaska, approximately 1,000 sea miles distant. The ability to repair fishing and crabbing vessels at Dutch Harbor is of great assistance to the fishing and crabbing industries in the Aleutian chain.

Other commercial interests also lease facilities in the Aleutians. An oil storage facility in Dutch Harbor on standby status has been leased to a major oil company for maintenance costs—about $20,000 per year. The facility supplies fuel to Naval vessels, but the major customers are commercial interests. Also at Dutch Harbor is a standby airstrip leased to a scheduled airline serving the Alaskan peninsula.

The list of outleases encompasses most farm and ranch products, except those designated by the Department of Agriculture as price supported crops in surplus supply.

Burning off vegetation in an aircraft end zone at NAS Brunswick, Maine, while ground is frozen, to permit growth of low-bush blueberry plants.

Here are a few more examples:

—A 212 acre parcel at Camp Pendleton Marine Corps Base, California, outleased for $6,057 a year for "vegetables and diversified field crops" supports what is claimed to be the largest single poinsettia farm in the world.

—Ninety additional acres at Camp Pendleton is leased for the raising of lemons. The cash rent is $13,250 per year plus a percentage of the gross sales in excess of $120,000 per year.

—The 21 acres of orange groves outleased at Sanford (Florida) Naval Air Station produce cash rental of $3,500, maintenance savings of $2,050 and conservation practices amounting to $2,940 annually.

Outleasing for truck corps at MCAS Beaufort, South Carolina.

—You can see hay trucks coming out of the main gate at McAlester (Oklahoma) Naval Ammunition Depot where the 20,722 acres of hay land produce cash rental of $18,575, maintenance savings of $87,600 and conservation practices amounting to $16,120.

—Thirty-nine acres is leased for walnut groves at Concord (California) Naval Weapons Station bringing in a cash rental of $60 in addition to maintenance of the area.

—A pecan raiser leases 163 acres at Albany (Georgia) Marine Corps Supply Center for a cash rent of $326 annually. In addition, there are maintenance savings of $3,200 and conservation practices worth $960 annually.

—Sheep are grazed at Concord (California) Naval Weapons Station.

—There are 24 acres of grazing land around the fuel tank farm at Charleston (South Carolina) Naval Supply Center. A lease with an enterprising cattle raiser produces $26 a year cash rent and $480 in maintenance savings.

—The site of the Navy Electronics Laboratory, San Diego, California, includes about 118 acres of salt flats and beach which is required only to prevent encroachment of activities which might generate electronic interference. Accordingly, the land was leased to a horse rancher for $3,000 a year plus maintenance. Apparently the site is ideally adapted to the care, development, training and therapy of thoroughbred horses.

The policy of the Navy is to insure receipt of fair rental value for all property outleased. There are situations where use of land is granted under license, where the Navy receives neither cash rent nor maintenance savings. For instance, some 35 acres of land was acquired for extension of Indianhead (Maryland) Naval Propellant Plant. As a condition of the conveyance, the former owner, now about 70 years old, was given a license (nontransferable), without charge, for fishing and trapping about 3 acres of pond and swamp until 1986. What does he fish and trap? Bullfrogs and rabbits. □

20,722 acres of hay land is under lease at NAD McAlester, Oklahoma, for a total consideration of $100,000 annually.

MILITARY FAMILY HOUSING

A Short Look Backward
A Long Look Forward

By **JOHN J. REED**

Deputy Assistant Secretary of Defense for Family Housing

Office of the Assistant Secretary of Defense (Installations and Logistics)

Housing—A Practical Defense Requirement

The Family Housing Program is important because it deals with people, and people are the most critical components of our weapons systems.

Since World War II, two major changes in the composition of our peacetime military services occurred. Technological changes making possible a "15-minute" nuclear war produced the requirement for a sizable peacetime military establishment. Sociological changes influencing our entire population have produced a new breed of career military man. He is married and has a large family. He has more education and is better trained than his World War II counterpart.

We have shifted from a quantitative to a qualitative environment. This is so in military equipment and equally so in military people. Our large "peacetime" forces are tangible evidence of the power of this great democracy. They permit our nation to execute its foreign policy, and they, basically, will fight any war forced upon us. Much depends upon each of these people.

We *must* have good people, and to get good people dedication and satisfaction must exist. We must attract and retain high caliber people—and unfortunately, at the present time, we are not retaining as many people as our Service leaders say we must have.

One of the ways to keep a good man in the Service is to assure him a decent place to live and to raise his family. Decent housing is foremost in the thinking of these people—just as it is in your thinking and in mine.

Five Billion Dollars Invested

The impact of all these factors has lead to the large number of Government-owned quarters which were constructed and made available to military families. Management of Military Family Housing has taken on all the aspects of a big business. In fact, we *do look* at Military Family Housing as big business. Our annual cash flow is in excess of $630 million for all housing costs. In addition, our approximately 370,000 housing units are valued at about $5 billion, of which we still owe over $2 billion in mortgages to private interests. Thus, we are dealing with a large business and one which must be efficiently managed in order to fulfill the needs of the military, as well as to satisfy the Congress as to our stewardship of the family housing program.

Upon taking office, Secretary McNamara recognized that family housing should be run on a businesslike basis. One of the deterrents to sound management of the program was the dispersion of responsibility at each level of organization for the various facets of the Department of Defense family housing program. It was also recognized that there was a lack of effective fiscal and program control for family housing at all organizational levels.

As the largest builder of family housing, and as the manager of the largest inventory of family housing, the Secretary of Defense recognized that the Defense Department had not only the opportunity, but the responsibility to seek, and engage in, those techniques which would procure the highest housing value obtainable at the lowest possible cost.

Management Responsibility Pinpointed

To achieve this end, the Secretary established a central housing group within OSD and charged that office with responsibility for initiating effective management of this program through the services. The position of Deputy Assistant Secretary of Defense for Family Housing was established and each service was directed to realine its organization so that its family housing program would be managed from a single source. The reorganization was, in effect, one of the initial efforts by the Secretary of Defense to bring about cost reduction and management improvement in Defense programs and operations. In establishing the new organization at the OSD level, the Secretary assigned to it the responsibility to (1) manage the family housing program, (2) manage it through the Military Services, and (3) manage it in a businesslike manner.

Beginning with the establishment of the Office of the DASD(FH), efforts have been directed to developing and instituting basic, uniform, management tools for use by all housing managers and instilling a businesslike management consciousness throughout the organization from the OSD level down to the installation level. These efforts have been concentrated in three major areas—requirements planning, construction and maintenance practices, and operational practices.

Community Housing Preferred

Before we look into requirements planning, it would be well to outline the objective and major policy of the housing program. The Department of Defense considers itself in the business of housing people, *not* in the business of building houses. We believe the distinction is significant. Our responsibility is to assure that career military people have adequate, economic housing in which to raise their families. Our general policy is that we prefer that the community be the major source of housing for our people. This is so for several reasons, not the least of which is that it is economical; it is also fundamentally sound to have military personnel living in civilian communities and participating in community activities.

However, this policy is subject to several necessary exceptions. There are certain personnel who for reasons of military necessity must live on base. Also, a sizeable community, of course, does not exist at many isolated locations, and therefore, little or no community support is available. Further, there are situations where either the quality of the community support, its location, or its cost creates a distinct hardship for military personnel, and it becomes necessary to help alleviate these hardships. Therefore, these situations demand that we build houses to fulfill these requirements and require us to have annual construction programs of some magnitude.

Firmer Planning

In addition to the construction programs, we must have improvement programs to protect the substantial investment in our assets and at the same time, modernize and upgrade our units to meet present needs. We feel that a level of about one-third of 1 percent of our inventory acquisition value should be invested annually to protect our aging inventory, by modernizing and updating our older quarters.

One of our early accomplishments to improve requirements planning was to put the housing program on a 5-year planning basis. In prior years, family housing planning was done only on an annual basis. The first objective was to identify the existing deficit and project assets over the 5-year term; then plans were established to solve the net deficit in orderly annual program increments.

As a further management improvement in the programing area, we have during the past few years revised the program criteria and methodology. The basic system for determining requirements is by use of an annual survey of married military personnel which reflects the status of their housing conditions. From this basic information, we are able to build a complete picture of the housing situation at any specified installation. We have established a Maximum Allowable Housing Cost as a measure of when a man is paying more than he can afford for shelter. This was developed to offset the criticism of the previous criteria based on a "go, no go" concept which said that we should program a Government-built house for a man if he only paid as little as $1 over his basic allowance for quarters. That allowance, by the way, is the sum of money based upon his rank, which is furnished to him to offset his housing costs. The amount is specifically established by law.

Commuting Standards Updated

We have also increased our distance criteria from 45 minutes to 1 hour commuting time, one way during rush hour, to be more realistic with today's commuting patterns. By this, we mean if a man lives within 1 hour's driving time of his work and is otherwise adequately housed, we classify that man as being adequately housed in the community. However, this is not applied to certain personnel who have a duty response time of 10–20 minutes. In connection with the MAHC mentioned above, we have also made some allowances for travel costs where it has been necessary for service personnel to commute relatively long distances to duty stations.

We are also now programing our requirements by bedroom count, as we found that frequently there might be sufficient housing in a community but the wrong bedroom composition. This refinement in programing technique has been effective in identifying the type of unit we can best use to meet our long-range needs.

Phaseout of Inferior Dwellings

With respect to the category of Government-owned housing classified as substandard, most of which was built during World War II, we have developed a plan for phasing out certain units which are no longer suitable for retention. Several years ago, the Congress specified that all such substandard housing which could not be improved to standards of adequacy would have to be disposed of prior to July 1, 1965. However, it was our view that there were some units which would have economic life beyond that date and on that basis, we developed criteria for the retention of some units beyond the specified termination date. We concluded that if the units were safe, decent, and sanitary, if the rents equaled or exceeded the cost of operating and maintaining the units, and if there was a continuing need which the community could not satisfy, it would be in the best interests of the Government to retain the units in the inventory beyond the mandatory disposal date. We presented this proposal to the Congress and after careful review, the Congress modified the legislation, giving us the discretion to continue to utilize such housing as long as it met these criteria. Although this housing remains substandard, we feel that it presents a wasting but economic asset which will be phased out at the termination of its economic life. It has proven to be particularly useful in meeting the needs of lower ranking enlisted personnel for whom we do not otherwise provide Government housing.

Private Investment Overseas

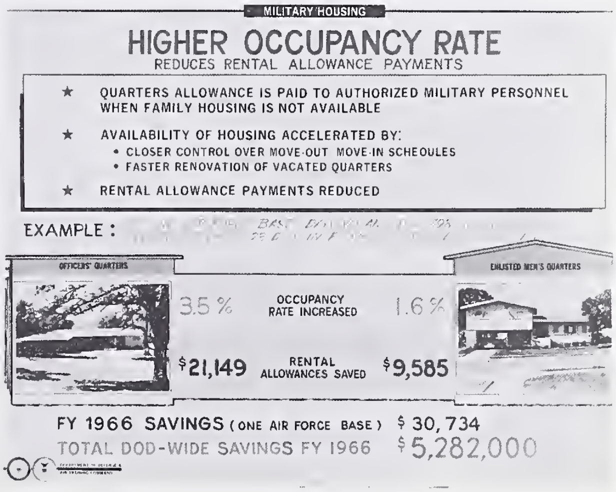
In connection with certain specialized needs, we have developed a unique program which is designed to provide housing in certain oversea areas by means of private investors building the houses, for which the Defense Department guarantees a stipulated percentage of occupancy for a specified number of years. This program, which is known as the Rental Guaranty Program, is appealing in that it does not require an initial outlay of U.S. capital to build the housing and it helps to minimize investment loss if circumstances require our withdrawal from an area. We consider it as a specialized program, but one which is very attractive in given situations.

Construction and Maintenance Modernized

In the second major area of concentration—construction and maintenance practices—there has been substantial management progress and improvement during the past several years. We have placed greater emphasis on reducing the time between the receipt of funds from the Congress and the beneficial occupancy of the completed houses. The shortening of "leadtime" in this instance provides housing to a serviceman earlier than heretofore and at the same time reduces the period during which the Government must pay him a BAQ.

We have also developed a new construction concept in housing overseas, known as USAHOME. Our USAHOME project was initially devised to conserve gold flow. This program consists of American manufactured componentized, prefabricated units which are shipped overseas for erection at a pre-prepared site. Initially, the program got off to a slow start because of production problems and high cost bids for on-site work; however, these major problems were resolved and the program has progressed well.

Another new concept utilized in the construction area is the Relocatable Housing Program. This program is used primarily in this country. Relocatable units are those which can be folded up for shipment over the highways and are erected on preconstructed foundations with a minimum of time and labor. The most effective use of this program can be realized in providing housing at tactical sites where tenure is uncertain and for "topping off" requirements at other military installations. This latter situation is where we are approaching maximum programing levels and where a slight adjustment in mission might create occupancy problems. In this kind of situation, it is prudent to use a unit which can be relocated to another



MILITARY HOUSING

HIGHER OCCUPANCY RATE
REDUCES RENTAL ALLOWANCE PAYMENTS

★ QUARTERS ALLOWANCE IS PAID TO AUTHORIZED MILITARY PERSONNEL WHEN FAMILY HOUSING IS NOT AVAILABLE

★ AVAILABILITY OF HOUSING ACCELERATED BY:
  - CLOSER CONTROL OVER MOVE-OUT MOVE-IN SCHEOULES
  - FASTER RENOVATION OF VACATED QUARTERS

★ RENTAL ALLOWANCE PAYMENTS REDUCED

EXAMPLE :

OFFICERS' QUARTERS		ENLISTED MEN'S QUARTERS
3.5 %	OCCUPANCY RATE INCREASED	1.6 %
$21,149	RENTAL ALLOWANCES SAVED	$9,585

FY 1966 SAVINGS (ONE AIR FORCE BASE) $ 30,734
TOTAL DOD-WIDE SAVINGS FY 1966 $5,282,000

base where the need at the preceding location has been terminated.

Another important innovation in the construction area has been the development and use of a design folio for military family housing. This folio is composed of a variety of designs applicable to various geographical locations and includes housing for both officers and enlisted men. These designs, which were created by four of the leading residential architectural firms in the nation, create an obtainable standard of livability for military family housing. We feel that continued utilization of these standard designs will ultimately reduce design cost for the housing progam and, in addition to improving the overall quality of the housing, will generate real cost savings. This will be a significant step toward our long-range goal of building to a standard rather than to a cost.

We have made several other management improvements in the construction and maintenance area including establishing and disseminating a range of acceptable O&M costs to reduce such costs to a reasonable and acceptable level. We have also developed an expanded and more definitive contract maintenance policy which should result in substantial cost savings in this area. In addition, greater emphasis has been given to the tenant self-help program which should reduce normal housekeeping activities heretofore imposed upon base engineering personnel.

Uniform Cost Accounting

In the area of operational practices, one of our early accomplishments was the establishment of a uniform cost accounting system for operation and maintenance of family housing. This system, which is simple yet detailed enough to provide information for managers to do their job, consists of 5 categories of housing, 9 major cost classifications, and 24 subclassifications by each installation. It enables us to measure costs between the Services and to evaluate costs by type of house, as well as to measure performance compared to the standard range.

In FY 1964, to further simplify the funding and administration of the program, Congress established a single appropriation to cover all the costs of the housing program. This appropriation, contained in the Military Construction Appropriation Act, includes funds for construction as well as operation and maintenance, and debt payment. Distribution of the funds to the Services and Defense Agencies for administration is done through the family housing management account.

Another area of concentration has been in the refinement of our inventory system. A quarterly reporting system from the Services and Agencies to OSD was instituted in 1963. Prior to that time, inventory data was not available, or when limited information could be obtained, its validity was questionable. The current system provides accurate inventory data, and is extremely useful to managers for planning and programing purposes. Our inventory status as of June 30, 1966, was 347,000 adequate public quarters and 25,000 substandard quarters.

Increased Occupancy Rate Saves BAQ

As an adjunct to inventory reporting, we have also established a system to report upon the occupancy of military family housing. Through this means, managers are able to measure performance against predetermined standards. We feel that it should be possible to attain an average of 98% occupancy in public quarters. Anything below that can be improved by concentrated attention on the part of local housing managers. Occupancy or utilization of family housing is a fruitful area for cost savings. For example: If we can increase the overall occupancy of our adequate public quarters by 1%, we will save approximately $4.7 million in basic allowance for quarters payments per year. This area deserves and has received special attention, not only for its dollar savings, but because of the opportunity to house more of our people and to house them faster.

We have made several other improvements in the family housing program which should be mentioned. A new uniform assignment policy has been established; we have implemented a new policy on establishing rental rates; controls on alterations to existing housing having been tightened; and we have outlined the functions and responsibilities of installation housing managers. Another significant area has been in initiation of a series of management indexes. We are setting goals and plans and measuring our progress against these. All of these efforts, like others described earlier, have contributed to more efficient and economical management of the family housing program.

One of our most recent efforts has been directed to utilizing family housing, which is excess to current requirements, for families of sponsors on unaccompanied tours of duty overseas. Where excess housing is used for these purposes, we have been able to effect cost savings in that the BAQ which otherwise would be paid to the families is withheld by the Government.

Continued on page 56

THE WEEK THAT WAS

The Week is Cost Reduction Week—and New Cumberland Army Depot celebrated it with a zest. It was all there: exhibits, press, films, handouts, certificates, speeches, ceremony, awards luncheon—the works.

Most of all, the Week had the two really essential ingredients for success: (1) an installation commander's strong, personal interest in reducing costs, and (2) employees smart enough and dedicated enough to find better, lower-cost ways to do the job.

One thousand six hundred and thirty-eight suggestions were received from the Depot's 2,300 personnel during the Week. By the Week's end, 231 of these ideas had been OK'd (racking up first-year savings of $74,701) and 600 more were still being evaluated. In addition, the Week sparked 4 studies with a $400,000 savings potential.

Congressman N. Neiman Craley, Jr., lauded 150 managers at the depot for their "program to reduce expenditures within the Department of Defense."

Approved ($74,701)	231
Already in use or under consideration	222
Not recommended for adoption	549
Suspense:	
Require additional study	23
Refer to higher headquarters	29
In process of evaluation	627
Total submitted	1,681

Asked for his recipe for a successful week, Col. Victor L. Carey, Commanding Officer of the Depot, cited the following:

(1) A high level task group to insure action.
(2) Daily brain-storming sessions.
(3) Timely handling of suggestions.
(4) Depot-wide publicity.
(5) Goals for each directorate or office.
(6) Inspired, go-getting people.

(A pictorial story of New Cumberland Army Depot's campaign appears on the next 2 pages.) ☐

KEY TO CITY UNLOCKS SAVINGS

National heroes, movie stars, foreign dignitaries, politicians and such are often given the full VIP treatment by appreciative cities. Vacaville, Calif., is the first city to go all out to honor deserving cost reducers.

How come? The city fathers of Vacaville have for some time been watching the progress of the cost reduction program as carried out at nearby Travis Air Force Base, and in the Military Airlift Command. As taxpayers, they are impressed by what is being done by their military neighbors to conserve their tax dollars.

To show their appreciation for these efforts, the city, through its Chamber of Commerce organization, selects each quarter an outstanding cost reducer for special recognition. He (or she) gets the full treatment including the key to the city, dinner in his honor, and a "night on the town."

The first "hero" to be so honored was SMSgt William Laughlin, a veteran crew chief. His idea for reducing towing and labor costs by cleaning aircraft on the ramp during service checks, instead of moving them to a wash rack area, saved an estimated $13,500. ☐

VIP PARKING

Top cost reduction suggestors rate reserved parking in front of Ft. Huachuca's headquarters building, Greely Hall. The first Suggestor-of-the-Month to be so honored was Mrs. Kathleen J. Lyons, a clerk with the classified documents section. Her suggestion of a better way to handle classified documents will save the Army about $11,000 in first year savings. At the same time it earned her $425 in cash, the Suggestor-of-the-Month trophy, and a special parking space for 30 days.

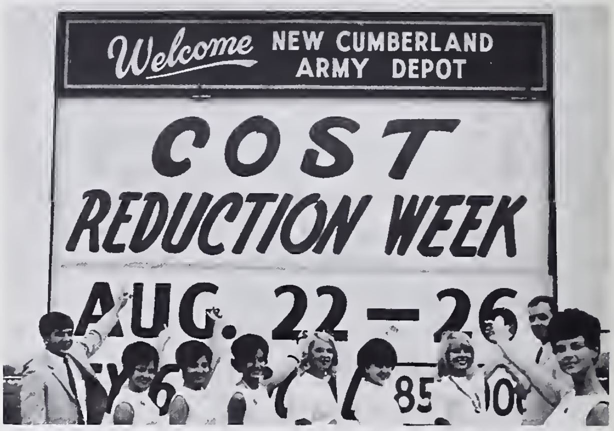
Colonel Clarence E. Mette, Jr., Chief of Staff of the U.S. Army Electronic Proving Ground, Ft. Huachuca, Ariz., officiated at the ceremony that honored Mrs. Lyons. ☐

COST REDUCTION WEEK AT N

TASK GROUP PLANS WEEK'S ACTIVITIES

Col. Cary, C.O., NCAD (center) is shown reviewing plans with his Cost Reduction Week Task Group.

SIGN AT MAIN GATE KICKS-OFF WEEK


Welcome NEW CUMBERLAND ARMY DEPOT
COST
REDUCTION WEEK
AUG. 22 – 26

Promotion team signals start of week. News releases, television, radio spot coverage, daily progress bulletins, films, and other publicity promoted the Week.

DAILY TRAILER TOURS

A decorated trailer roved the depot carrying the cost reduction message.

ALL WORK AREAS VISITED

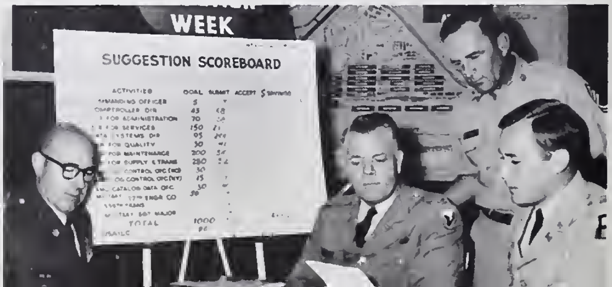
Employees heard promotional team during work breaks and lunch periods.

BRAINSTORMING SPURRED PROGRESS

Daily "brainstorming" sessions were held with the Depot's Program-Budget Advisory Committee and cost reduction representatives.

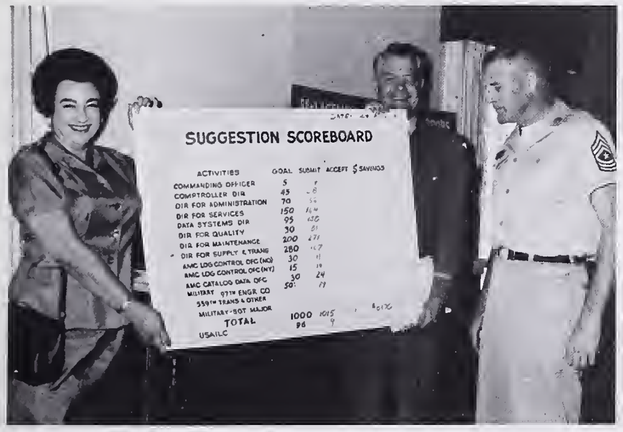
TWENTY-FOUR HOUR TOP LEVEL REVIEW

Colonel Cary and members of his staff kept daily score on progress and reviewed all suggestions within 24 hours from receipt.



W CUMBERLAND ARMY DEPOT

SCORECARD SHOWS PROGRESS



Goal of 1000 suggestions was 385% higher than last year's. Employees were guaranteed personal review of suggestions by the CO within 24 hours after receipt.

SUGGESTION CENTERS SET UP

Pat Hershey, NCAD receptionist, passed out suggestion blanks and promotional materials and accepted completed suggestion forms.

HELP FOR IDEAS

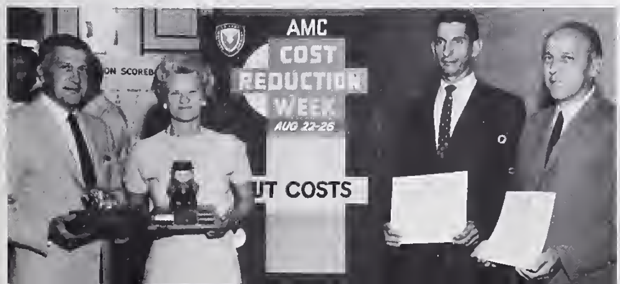
Contact points in the various Directorates helped employees put their savings ideas into the proper format.

MILITARY PARTICIPATION ACCENTED

Special emphasis was placed on fact that military personnel are also eligible now for monetary awards.

RECOGNITION WAS PROMPT

Special awards ceremonies were held during the week. Over 80 employees were presented with cash awards or other forms of recognition.



RESULTS REVIEWED AT LUNCHEON

Results of the Week's intensified cost reduction drive were announced at a victory luncheon by Colonel Cary. (See story page 25.)

TALLY PROVES CAMPAIGN A WOW

Navy's monthly rate of cost-cutting suggestions jumped 400 percent in the 2 months covered by Campaign WOW.

The Navy's unique idea for increasing all-hands' interest and participation in the cost reduction effort—Campaign "WOW" (War on Waste)—was conducted during the 2-month period September 15 through November 15, 1965. This project, sponsored jointly by the Chief of Naval Material and Chief of Industrial Relations, was conducted throughout the Naval Shore Establishment at activities with 300 or more civilian employees.

The "WOW" campaign concentrated on increasing the flow of usable cost-cutting ideas through various devices such as a "how-to-do-it" booklet showing how to promote the campaign, motivational posters, a simple form for recording "cost cutter" ideas, lapel emblems, and certificates of merit for recognizing outstanding contributions.

The Navy's "after action report," based on questionnaires sent to all participating activities, shows the campaign was an unqualified success. Here are the statistics to prove it.

Number of cost-cutting suggestions received	42,224
Number of cost-cutting suggestions adopted	6,094
Dollar benefits derived from adopted cost cutters	$3,782,000
Number of cash awards granted	4,595
Dollar value of awards granted	$154,712
Number of honorary awards granted	777
Number of supervisors receiving honorary award recognition for campaign promotion and employee motivation	522
Number of cost-cutting suggestions still pending	5,800
Number of activities which conducted "Campaign WOW"	137
Number of civilian employees in the 137 activities (Approximately 75% of total Navy and Marine Corps civilian employment)	249,957

For comparative purposes it should be noted that experience over the previous 3 years indicates that the Navy received approximately 50,000 suggestions from its employees each year. The summary above shows what was accomplished in only 2 months under Campaign "WOW". ☐

"COST REDUCTION"—THEME OF NASS CONFERENCE

The topic "Cost Reduction" played a prominent role in the 24th Annual Conference of the National Association of Suggestions Systems (NASS) which was held at the Mayflower Hotel, Washington, D.C., October 9–11.

NASS is an international organization devoted to the task of improving the effectiveness of employee suggestion systems. Its membership is drawn from both industry and Government.

The Conference was opened with a "Welcome to Washington" address by John W. Macy, Jr., Chairman, United States Civil Service Commission. The part that suggestions play in promoting cost reduction was fully explored in several stimulating workshops. Many other well-known programs such as Value Engineering and Zero Defects were thoroughly covered. Those attending the Conference were also afforded the opportunity to view a large number of impressive exhibits and displays showing the latest techniques in telling and selling the management improvement story. ☐

COST REDUCTION IN CURRICULUM

Cost Reduction is one subject covered in the newly established Navy Department Orientation Course (NAVDOC). This course is for officers (lieutenant commanders, majors, and above) and civilian managers (GS–12 and above) reporting to the Naval Material Command in Washington, D.C.

The course runs a full week and is designed to increase the efficiency of Navy logistic support by providing a formal orientation program for the approximately 1,500 new managers who report to the Naval Material Command each year. Other subjects include planning, development, programing, budgeting, and production to meet the personnel and material requirements of the Operating Forces. All classes are held at the Naval Air Facility, Andrews Air Force Base, Washington, D.C. ☐

A wise man once said: "I am only one, but still I am one. I cannot do everything, but still I can do something. And because I cannot do everything I will not refuse to do the something that I can do."

SHIPYARDS TODAY—

A Study in Streamlining

By **REAR ADMIRAL W. F. PETROVIC, USN**

Deputy Commander for Shipyard Management and Program Director for Shipyard Modernization, Naval Ship Systems Command

Leads in Management Innovations

The Naval Ship Systems Command (formerly Bureau of Ships) has long been recognized for its record of pioneering improved industrial management systems, tooling, and production processes in the operations of its Naval shipyards. We were among the first to apply the Naval Industrial Fund to the industrial operations of the Navy and obtain the managerial benefits therefrom. The techniques of value engineering were spearheaded in the Navy by NAVSHIPS in 1954, and in recognition of our successful applications, were soon widely adopted throughout the Department of Defense (DoD). The development and application of many improved production processes and tooling, such as the integrated system for photolofting that is compatible with cutting machines, the use of airless blasting for hull plate cleaning, numerical controlled and computer lofting, and the superflooding approach to increased drydocking capacity were first applied to the shipbuilding/ship repair industry by our Naval shipyards.

Triple Assault on Costs

This is only a partial listing of our past achievements of which we can rightfully be proud and I cite them mainly in recognition of the competence of our military/civilian team of engineers and industrial managers. But, as the old axiom goes, "to stand still is to go backward" and especially in today's era of rapidly expanding technology, we cannot afford to rest on our oars. With this in mind, the NAVSHIPS has launched a full-scale frontal assault to further improve the management of our shipyards and reduce the costs of their operations. Our efforts revolve mainly around a threefold approach which I will explain in detail in the remainder of this article.

- DIMES
- Shipyard Modernization
- Management Information System (MIS)

Dimes—Similar But Different

DIMES is a management program for industrial-type activities in the Department of Defense. The term "DIMES" is an acronym for Defense Integrated Management Engineering Systems. We have had many management programs throughout the years but there are some things that set DIMES apart from the other programs. One, in particular, has been the kind of direction it has received.

The direction has been quite precise—starting with a memorandum from President Kennedy to the heads of departments and agencies emphasizing the importance of keeping the number of Federal employees to the absolute minimum necessary to get public business done. This memo was reinforced by a Bureau of Budget circular which established general policy and guidance and required each Department to develop its own management improvement program. The responsibility for developing DoD's plan was assigned to the Office of the Assistant Secretary for Installations and Logistics.

There is nothing unique about our DIMES approach. NAVSHIPS policy is and has always been to *adopt* management systems and procedures that have proven successful in private industry—*adapt* them to our needs in order to assure maximum utilization of our resources. This has been approved and endorsed by DoD and as a result, the program in our Naval shipyards is really an extension and reemphasis of our Production Planning and Control Program (PP&C) initiated in 1951.

Concepts Tested at Pilot Yards—There is significant difference between DIMES and some of its predecessors, however. DIMES has recognized that a certain amount of investment would be required to get the anticipated results from the program. Because of the large number of activities in DoD and the substantial investment involved in staffing for the program, it was decided to test it out in 9 pilot Navy activities that would be representative of the total complex before applying it across the board. For our test purposes we designated the Charleston and Long Beach Naval Shipyards.

The primary emphasis or "first phase" of the DIMES program has been to develop engineered standards for the majority of the productive effort in the pilot activity. Our "goal" was set at getting at least 60% coverage by September 1965. These engineered standards are then to provide the base or foundation for an integrated management system encompassing method and procedures improvement, performance measurement, production, manpower and material controls, and cost accounting that highlights variance from standards. At the time we were requested to select our two pilot yards, we already were developing engineered standards as part of our PP&C Program. Our success had been limited to some degree by lack of manpower resources and there was considerable doubt in certain circles as to whether the goal of 60% coverage was even attainable.

The Critical Questions—Although our previous experience had been rather discouraging, we entered into the pilot yard concept on a "sink or swim" basis. The pilot application provided an opportunity to find the answers to some questions about our program which had been troubling us for a long time. (1) *Could* we develop engineered standards for the majority of shipyard work—especially in the repair area? (2) If we would develop them, could we apply them in a practical manner in view of the chronic difficulties encountered in planning shipyard work? (3) Even if we were able to develop and apply them, would they *pay off?*

Standards: Development and Use—So much for the theory of the program. What has happened so far at our pilot installations?

First, each yard had to develop a plan-of-action outlining the areas of standard development. Then came the business of carryig out the plan—the selecting and training of technicians.

Chart No. 1 reflects the progress of standards development and usage at Charleston. As you can see they had their 60% goal just about within reach when progress leveled off and usage even dropped a little. This situation was created by an unusual work assignment—a major conversion on an Army ship, the *CORPUS CHRISTI BAY.*

Chart No. 2 shows the Long Beach progress. They got off to a head start and, as you can see, made their schedule with a little time to spare. Their work mix has remained stable enough to enable them to maintain 60% usage up to the present quarter. The accomplishments at both yards have provided affirmative answers to our first two basic questions. They proved pretty conclusively that *it is* possible to develop and apply standards in shipyards.

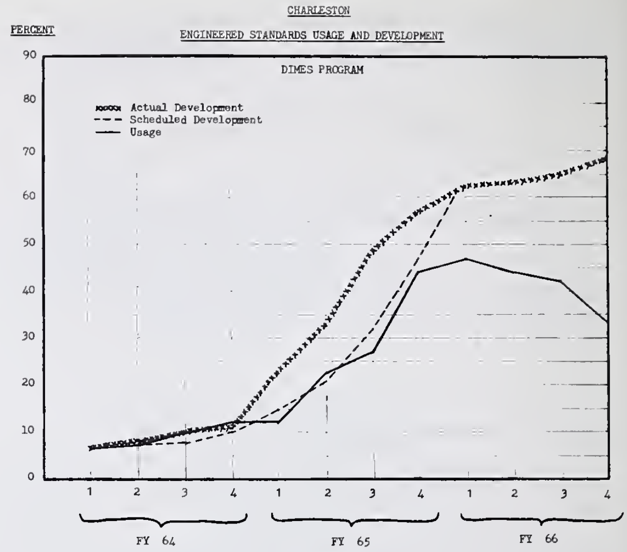


CHART I

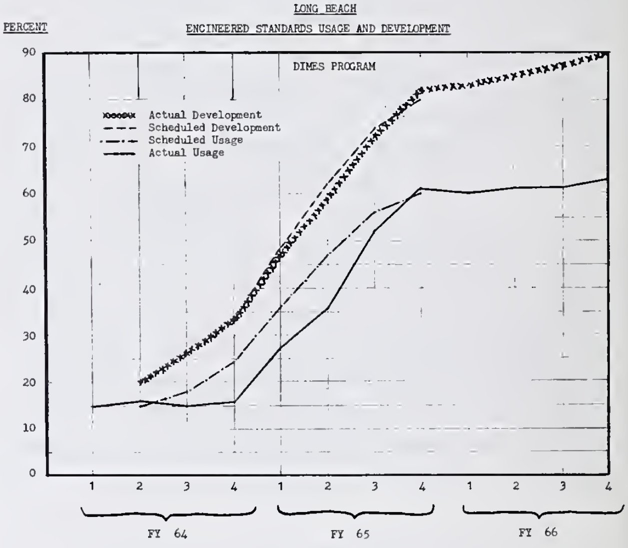


CHART 2

Proving the Gains—How about our third question—The standards *paying off.* After all, if our standards do not provide a tool for more effective management and save money, we have not really gained.

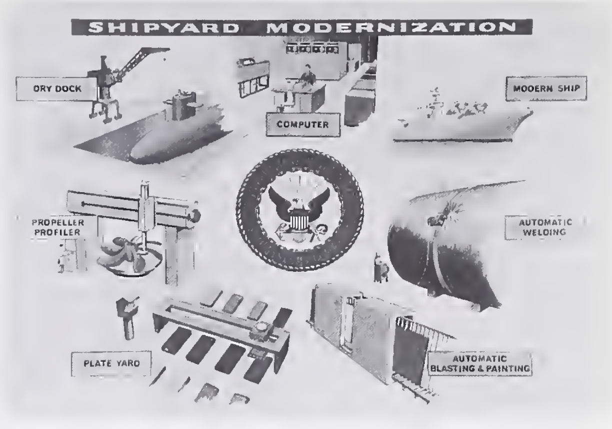
Long Beach has been the pilot in validating our cost savings. They have documented total costs for specific jobs before an engineered methods and standards study was developed and again after the standard was established and in use.

All documentation is based on actual job costs. The guidelines that they have developed and used are based on (1) breaking the operation or task into identifiable or definable measurements (such as linear feet of welding, square feet of surface painted, linear feet of cable pulled) so that a basis for comparison can be made; (2) describing or planning the job order so that it can be demonstrated that the test currently being performed with the use of the standard is the same task as was previously being performed; and (3) proving to the auditors that the actual time required for performance subsequent to the application of the standard is consistently less than the actual time required prior to the use of the standard. As of the end of this fiscal year, Long Beach has had a cost improvement of over three million dollars ($3,101,114) audited and approved. Charleston is now documenting cost improvements in the standards area and has had $577,695 validated to date. It should be mentioned that up to this time, cost improvements citing the use of engineered standards as the reason for improvement had never been validated.

You don't get all this free. In our two pilot shipyards, the job of developing standards required about 50 additional technicians and as the development stage neared completion, it was necessary to move additional people to the planning and estimating area due to the additional effort required to properly apply standards. We expected this—but we also expected some return from that investment in terms of cost improvement. We think each standards technician can save three times his salary each year. Long Beach is doing better than this.

All Shipyards Now DIMES Oriented—Based on the results at the pilot shipyards, the DIMES Program was extended to all shipyards in May 1965. As in the pilot yards, our initial objective is to develop engineered standards to cover at least 60% of the productive effort. The selection and training of standards technicians has been completed at all shipyards and at this time our overall shipyard standards coverage is 30%—or halfway to our 60% objective. Significant cost improvements and increased productivity are anticipated at all shipyards as the program continues to expand and the standards are completely integrated into the shipyard production control system and we intend to document our results with the cost saving auditing technique approved at Long Beach.

Our goal is to achieve the literal meaning of DIMES—a completely integrated management engineering system that improves performance and reduces costs.



Shipyard Modernization

Naval shipyards do approximately $1 billion worth of work each year and our original capital investment in land, buildings and equipment is recorded as $1.2 billion. Conservatively estimated today's replacement cost for these facilities would be over $5 billion. However, the majority of them were procured during or prior to World War II and 52.5% of our 12,000 items of major metal working machines were bought before 1944 and the average age of all this equipment is 21.4 years.

Meanwhile, since the end of World War II, major technical advances have been reflected in our ships. Destroyers for example, have grown in length from 366′ to 533′. Nuclear power—guided and ballistic missiles—improved and more complex radar, sonar communications and navigational systems—high-steam pressures and temperatures—higher tensile strengths and greater thicknesses in our steels, are some other examples of more demanding changes. So each year we are faced with replacing "worn out" tools and equipment, and at the same time we must acquire more sophisticated capabilities to match the technological developments that are constantly being incorporated into the Active Fleet.

With normal funding we are not capable of doing justice to both requirements. Since the NAVSHIPS portion of the total Department of Defense facilities and equipment budget for Naval shipyards had not materially changed in the last 10 years, we developed and submitted to the Department of Defense a modernization program for the naval shipyards for program review in 1963. Before this program could clear the review processes, it was overtaken by events. During late 1963 and 1964, the Department of Defense convened a series of study groups to analyze the requirements for the existing shore-based complex in the light of the existing national policy. The Naval shipyards were subjected to a special study by a group composed of high ranking officials of the Department of Defense and the Department of the Navy under the guidance of the Secretary of the Navy. Each Naval shipyard's capability was reviewed in depth and examined under the microscope of cost effectiveness. As a result of the study the Secretary of Defense recommended that:

The Department of the Navy should prepare and submit to the Secretary of Defense a Five-Year Modernization Program for the remaining naval shipyards with priority to projects offering a three-year payback due to decreased costs.

Objective: Highlight Deficiencies—In response to this, NAVSHIPS immediately set about to develop a totally integrated Shipyard Modernization Program that would withstand program and budget review procedures taking into consideration both facility and industrial production equipment requirements. Mention must be made at this point of one significant aspect of the Navy's planning system because to succeed the supporting justification and documentation for the Modernization Program must conform and stand up under it. This system is based upon the fact that the basic facilities and equipment required to perform a given theoretical mission can be developed and from this base deficiencies or surpluses in any actual activity with a similar mission can be readily determined. The process of making these determinations is known as the development of the Basic Facilities Requirements List (BFRL) and should highlight deficiencies and surpluses when the basic BFRL is compared with any given activity with a similar mission. The problem in the Navy's planning procedures is that there are no planning standards that can be used when developing BFRL's for industrial organizations.

Capital-Labor Substitution—To solve this problem we formed a cooperative team of personnel from NAVSHIPS, the shipyards concerned and a contractor and set out to achieve a long-range forward looking improvement program directed towards the optimum level of *substituting capital for labor*. We recognized that in a craft-oriented industry as represented by both private and public shipbuilding/ship repair in the United States, labor and material represent the majority of the total cost of accomplishing any particular job. To reduce the labor and material cost of any job, it is necessary to substitute a capital investment for labor to the maximum extent possible. It is a well-known industrial engineering fact that by substituting capital investment for labor, a double benefit will accrue. First and foremost, you will conserve an extremely scarce commodity, namely skilled manpower. Secondly, with a capital investment substituted for manual labor, the job normally can be performed with a higher degree of accuracy, less material, and in a shorter period of time. Finally, our intent is to have nine long-ranged modernization plans (one for each shipyard), each separate and distinct within themselves, yet so conceived and structured that each can be an integral coordinated and viable part of the total master long-range program of the Ship Systems Command.

The Study Plan—Now how are we going about this study?

a. We had to simulate an optimum modern shipyard to perform a given mission, task and workload.

b. We had to develop standard units of measure that are applicable to facilities and equipment so that we could properly size or scope the requirements.

c. Through optimization analysis we are now comparing each existing shipyard versus the optimum shipyard that we previously simulated.

d. The deficiencies that developed through the optimization analysis are being scoped and sized using the planning standards previously developed.

e. We next have to identify the industrial productive equipment required to make the new facilities complete and usable plus the equipment necessary to discharge the assigned mission and to replace worn out and obsolete machines.

Budget Ties to Modernization—After these steps have been completed, a modernization program for that activity must be developed around the two major budget elements—Military Construction and Industrial Productive Equipment. Where there is a line item relationship between these two budget elements it must be so indicated. The Military Construction budget element is further subdivided:

a. Mandatory facilities required to satisfy mission and operational requirements.

b. Industrial improvement and modernization facilities required due to our technological advancement and the state of the art.

c. Capital maintenance on existing facilities required to restore them to their original capability.

d. Personnel support facilities required to satisfy the housing, subsistence and recreational requirements of military personnel on ships undergoing overhaul in a particular naval shipyard.

The Industrial Productive Equipment budget element will be divided into:

a. Mandatory items required to satisfy mission and operational requirements.

b. Industrial improvement and modernization.

c. Technical collateral equipment that is in support of the military construction facilities.

d. Replacement items for those pieces of industrial equipment that are consumed in our productive process.

Total Package Concept for Shipyards—Each facility and equipment line item will be analyzed to determine its economic investment potential. A savings analysis will be made and documented for each line item and a system devised whereby a cost utility analysis can be performed on each line item. A budget plan will be formulated for each activity indicating objectives by fiscal years and a total budget plan developed for all shipyards.

This is the first time that we have had the opportunity to try the "total package concept" for each shipyard, and for total shipyards' modernization. This should provide a logic chart for each activity to use when making facility and equipment decisions in the future and furnish a total plan sufficiently flexible for unforeseen requirements to be readily planned and introduced without program disruption.

The Steps to Progress—To summarize, our goal is to plan, program and carry out the modernization of the Naval shipyards so as to "optimize" services to the present Fleet—to support the future Fleet—and to do it at the lowest possible cost. To achieve this goal we must satisfy requirements that we have:

a. Assured that the program for each shipyard is structured in terms of its mission, tasks and workload.

b. Made an analytical comparison of each alternative solution to any deficiency problem.

c. Assured the ability to be able to continually update the Five-Year Force Structure and Financial Plan.

d. Provided a framework within which decisions relating to facilities and equipment can be made with consistency at the activity level.

e. Provided a means of reporting on the validity and the accuracy of the facility and equipment plan.

Management Information System (MIS)

The third of these major efforts involved the Naval Ship Systems Command Management Information System (NAVSHIPS MIS) for our shipyards. NAVSHIPS MIS is a computer based, integrated information system program started back in 1960—is a multiphase program—and is under active, continuing development.

Significant features of the system are—

- uniform hardware configurations
- development of standardized inputs, files, subsystems and procedures
- elimination of duplicate system analysis and programming
- creation of common files for various users.

To date we have installed the standarized hardware and software of the first phase of NAVSHIPS MIS in six shipyards. Phase I provides for standard operational output (specified and designed by the shipyards) in the areas of Production Management, Material Management, and Financial Management. Standard computer programs in the applications of Production Planning & Control, Payroll, Cost Accounting, Budgeting, Material Control, Shop Stores Control, and others, are operational at Boston and Long Beach Naval Shipyards. Conversions are in process at San Francisco Bay, Philadelphia, Charleston, and Norfolk.

Centralized maintenance and improvement of the standard programs is being performed by the Computer Applications Support and Development Office (CASDO), a field office of NAVSHIPS located at Boston. Personnel from CASDO and NAVSHIPS Headquarters are today engaged in producing improvements and refinements in existing programs.

Conceptual design of the second and third phases of NAVSHIPS MIS is underway at Headquarters and CASDO. The second phase of NAVSHIPS MIS will be geared to increase utilization of management sciences techniques to provide more sophisticated predictive and decision-aiding information in addition to the operational data now produced. The third phase of NAVSHIPS MIS will be geared to utilization of random access and real time techniques and digital communications between headquarters and the field activities.

The long-range objectives of NAVSHIPS MIS are to provide shipyard management with the best possible predictive and operational information, utilizing the latest management sciences control techniques, and taking maximum advantage of the latest flexible and modular computer and communications equipment.

The tie-in is this: We intend to use the best cost-compatible computer hardware and software available to allow shipyard management to take maximum advantage of advanced industrial control techniques such as DIMES and our improved industrial facilities and modernized equipments. ☐

SPEC CHANGE EVOKES NO ACID COMMENTS

That's right! These 5-gallon containers for corrosive-type chemicals do look alike. The resemblance, however, ends there.

The container on the bottom is stronger, leakproof, acceptable for air shipment, and less expensive. That's not all. The "after" version is also reusable.

The new item is fabricated from components not normally assembled as a unit. For example, the gage (thickness) prescribed for the metal cover is heavier than that prescribed for the body, whereas the standard commercial assembly specifies the same gage metal for both cover and body but will not withstand a 15 psi internal air pressure. The interior polyethylene container is fabricated from two sheets of polyethylene film by the vacuum molding process to provide a wall thickness of 0.015 inch. The poly container could also be molded from extruded polyethylene film by the blow molding process.

Whereas a poly container of this type would normally be provided only a screw cap closure which is subject to loosening through vibration, the poly container in this item is also provided with a standard rubber cork which not only insures against leakage in itself, but also provides pressure against the screw cap to prevent its loosening and loss during transportation and handling. The final closure of the metal pail is effected by use of a metal steel strap with a tightening device, or a bolt and ring device, to further strengthen the standard lug fastening of the metal cover.

John Boyle, Quality Control Specialist at DSA's Defense General Supply Center in Richmond, was primarily responsible for working out the new spec. The old container cost $5.15; the new one, $2.18. Savings on the first-year procurement of 18,262 units totaled $48,759. ☐

WHAT'S "WATS"?

"WATS" means "Wide Area Telephone Service" and the Autonetics Division of North American Aviation, Inc., reports estimated annual savings of $163,000 in the Defense Contractor Cost Reduction Program through its "WATS" Sweep Program. These WATS lines are paid for on a flat rate per month basis. Each day, Autonetics' telephone operators contact various regional, district and other off-site offices to solicit long distance calls. In this way, the cost of commercial toll calls to Autonetics in Anaheim (Calif.) has been significantly reduced. ☐

BUYER TALKS TURKEY TO CONTRACTORS

Some legal "fowl" play by two alert employees of the Defense Personnel Support Center's Chicago food buying office has saved the Government over $55,000.

The Center, located in Philadelphia, procures food, clothing, and medical materiel for the Armed Forces. Recently it had a requirement to buy some two million cans of boned chicken for combat ration meals. The Center's Chicago Subsistance Region Headquarters was assigned to do the buying.

Upon receipt of the price offers sent in by poultry processors, Walter Gregory, the buyer in Chicago, noted that one processor had submitted an alternate offer for canned turkey at a price $45,000 less than chicken. However, the purchase order specified chicken, only.

Gregory decided that the savings opportunity was too significant to "chicken out" on, so after discussing the idea with his contracting officer, Bruno Pieniazek, they recommended that the original procurement be replaced by one asking for either type of fowl.

When prices were resolicited, both Pieniazek and Gregory were pleasantly surprised to find that the prices offered for turkey proved not $45,000 but $55,224 less than for chicken. Additional savings on future procurements are anticipated.

NORAD GETS THE MESSAGE

Noone likes to get a large telephone bill. Neither did the North American Air Defense Command whose telephone bill has averaged $100 million a year. But this year, thanks to the persistent efforts of men like the 71st Surveillance Wing's Lt. Col. Jimmy Hale, NORAD's bill will be approximately $18 million less than in prior years.

The Air Defense Command's 71st Surveillance Wing is responsible for the operation of the Ballistic Missile Early Warning System (BMEWS). This system is designed to warn North America of any missile attack launched across the north polar routes. Communications between the sites at Clear, Alaska; Thule, Greenland; and Fylingdales Moor, England, must be completely dependable. To do its job, BMEWS must not only detect a missile attack, but must also be able to instantly relay missile detection information thousands of miles to the NORAD Combat Operations Center in Colorado Springs.

For more than 2 years, Lt. Colonel Hale and his staff have been searching for methods of providing the best possible communications facilities between the BMEWS sites and the NORAD Combat Operations Center. Best possible communications—telephone, data and teletype circuits—means absolute dependability at the lowest possible cost.

One of Colonel Hale's suggested improvements in teletype communications between the BMEWS site at Thule, Greenland, and Ent Air Force Base saved the taxpayers more than $17,000 last year, and is expected to produce savings of about $25,000 this year. The old backup teletype circuit between Thule and Colorado Springs was routed through Government low frequency radio equipment between Thule and Goose Bay, Labrador, and then across the continent on commercially operated tropospheric scatter radio and telephone lines. Last year, Colonel Hale and his staff found an even more dependable way to route the teletype signals from Greenland to the Combat Operations Center.

Now, the teletype circuit begins its journey via a Government-owned tropospheric scatter radio link which was constructed for other purposes after the old teletype route had been established. From Canada's northeast coast, the signal crosses two-thirds of Canada on another Government-owned radio link which was built for Distant Early Warning System radar site communications.

In north-central Canada, the signal is fed into a Government leased telephone communications package which, using both radio and telephone wires, brings the teletype information into Colorado Springs and the NORAD Cheyenne Mountain Complex. The teletype signal "hitchhikes" all the way from Greenland to Colorado on communications circuits which were in existence and already being used for other purposes.

The saving of about $25,000 a year was realized by eliminating both the expensive low frequency radio equipment at Goose Bay and Thule and by discontinuing the use of the commercial facilities which had brought the signal from Goose Bay into Colorado Springs. The total cost of the new circuit is only $15 a year.

Without communications facilities, NORAD's complex array of warning systems and defensive weapons could not function. Colonel Hale and his staff are examples of the Air Force experts who work to insure that the BMEWS is reliable and that the American taxpayer receives the greatest possible amount of aerospace defense for his dollar. □

INGENIOUS IDEA BY INDIGENOUS EMPLOYEE

Mr. Yi, Ki Su, a Korean national working for the Eighth U.S. Army Telephone Exchange in Seoul, Korea, has saved the U.S. Government over $150,000 in the last 2 years and additional savings approximating $232,000 are expected by the end of FY 1967. Mr. Yi represents an outstanding example of the many indigenous employees throughout the world who are making significant contributions to the efficiency and economy of operations of the U.S. Armed Forces

Mr. Yi devised a procedure for doubling the capacity of long distance direct-dialing equipment.

The Eighth U.S. Army uses 32 bays of tone pulse equipment for long distance dialing. Each bay contained 12 individual tone pulse repeater panels making a total of 384 individual repeaters for long distance dial circuits connecting U.S. military installations throughout the Republic of Korea. Additional bays of equipment of Japanese manufacture would cost $12,000 per bay. Mr. Yi's study of the equipment circuit diagrams indicated that with modification of the wiring and the addition of a hybrid coil, each repeater could be made to operate on two circuits instead of one.

A test of one modified repeater proved highly successful. As a result, modification action was initiated on all repeaters and the procurement program was canceled. □

Educating for Defense

The following is excerpted from an address by Robert S. McNamara, Secretary of Defense, before the Veterans of Foreign Wars at New York City on August 23, 1966.

Fully one-third of the Nation's youth currently do not qualify for military service under Department of Defense fitness standards; 600,000 young men a year are rejected.

Roughly one-half of this total fail to qualify because of medical problems, and the other half because of educational deficiencies.

The rate of failure varies widely among the different States and regions of the country. The State with the highest proportion of men failing to meet the educational standards has a rate nearly 10 times as great as the lowest.

The vast majority of these 600,000 young men are the victims of faulty education or of inadequate health services. They have been born and raised in the richest Nation on earth—but below the participation line. They are part of America's subterranean poor.

I do not believe that the qualification standards for military service should now be lowered.

What I do believe is that through the application of advanced educational and medical techniques we can salvage tens of thousands of these men, each year, first for productive military careers and later for productive roles in society.

After studying the matter in close detail, I am convinced that at least 100,000 men a year who are currently being rejected for military service, including tens of thousands who volunteer, can be accepted.

To make this possible, we need only to use fully and imaginatively the resources at hand—the Defense Department today is the largest single educational complex that the world has ever possessed.

The Services provide enlisted men with professional training in some 1,500 different skills in more than 2,000 separate courses. In addition, 65,000 officers a year continue their professional education.

The Department of Defense operates 327 dependents' schools around the world, employing 6,800 classroom teachers for 166,000 students—making it the ninth largest U.S. school system, with a budget of $90 million.

More than 30 correspondence school centers are sponsored by the military departments, offering over 2,000 courses and enrolling nearly a million students scattered about the globe.

The U.S. Armed Forces Institute currently has enrolled 258,000 students in hundreds of courses including everything from the grammar school level through college. During the past 5 years, an annual average of 95,000 individuals, who entered the service without a high school diploma, earned that diploma—or its equivalent—through this hugely beneficial program.

Now, this immense educational complex exists specifically for the needs of the Defense Department, but it nevertheless has a gigantic spinoff into American society as a whole. The Services return over half a million personnel, annually, to the country's skilled manpower pool.

The fact is that a very substantial number of civilians currently employed in such skilled occupational fields as electronics, engineering, transportation management, machine-tool operation, automotive and aircraft maintenance, and the building trades—to mention only a few—have been trained in the Armed Forces.

Thus, the imperatives of national security in our technological age make the Defense Department the world's largest educator of highly skilled men. Those same imperatives required that it also be the world's most efficient educator.

As a result, the Defense Department has pioneered some of the most advanced teaching techniques. Indeed, it has been in the vanguard of a whole series of innovations in educational technology. Its findings, and its philosophy, are making a significant contribution to the modernization that is sweeping throughout the entire American school system.

One of the Department's key concepts is that traditional classroom training is often largely irrelevant to actual on-the-job performance requirements.

By pruning from existing courses all nonessential information, we have found that we can not only substantially shorten the training period, but—more important—we can dramatically boost the students' success at learning.

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REPEATING

Cost Reduction Programs for Industry— A Summary

The Journal asked management consultant Lewis R. Zeyher to summarize his address before the Annual Conference of the National Association of Suggestion Systems on October 9 at Washington, D.C. That summary is presented below. Mr. Zeyher is the author of "Cost Reduction in the Plant" (Prentice-Hall, Inc.) and the "Production Manager's Desk Book" (which will be released in late 1967). He has had 30 years experience with industry cost reduction programs—the last 11 as president of his own consulting firm in Jenkintown, Pa.

Business Has To Be Cost Conscious

Most businesses today are operating in a flourishing market, sales volumes are expanding and profits are at top levels. Economic forecasts point to continued business prosperity well into 1967.

With these encouraging business indicators why should we worry about cost reduction programs in our respective businesses?

Before answering this question the following opposing factors are presented for your consideration:

(1) At this writing we are experiencing a tight money market. Interest rates today have reached the highest level in 40 years. There currently is an upward spiral of interest rates.

(2) Industry has been asked to voluntarily reduce their present borrowing levels.

(3) The President has called for a 16 months suspension of the investment tax credit currently allowed to businessmen for spending on equipment.

(4) For this same period, he has also requested suspension of the law that lets business claim speeded-up tax deduction on buildings.

(5) The President has also requested cutbacks in nonwar spending by the Government.

Obviously, all these innovations will have a considerable adverse affect on business profits. In view of these conditions, a business must cut costs in order to maintain its profit position.

There are, in addition, a number of other compelling reasons for a company to reduce its operating costs.

(a) Efficiency is synonymous with cost reduction. The efficiently run plant is generally the lowest cost run plant.

(b) A growing business can develop much more effectively if it is operated with basic management controls and its growth is planned.

(c) It has been stated that the successful businesses of the decade that lies ahead must provide their customers with the very best in service. A company cannot offer excellent customer service if it is inefficiently operated.

(d) Still another consideration, not to be overlooked, is the developing manpower shortage. Most cost reduction programs generate more product with less labor. Likewise the introduction of management controls aids materially in more effective utilization of the manpower already employed. It also aids in making more effective utilization of plant floor space and equipment.

One Way to Effective Management

Most company managements consider the problems of their plant operations unique and very different from plants in other types of industries, while in fact, they only differ in degree. Each have human problems (employees), mechanical problems (buildings, equipment, and machinery), and all have financial problems (costs, waste, mounting operating expenses, inventory turnover, and related problems).

Today's managers—and more importantly, the managers of the decade that lies ahead—must be knowledgeable in many facets of an enterprise. They must first know and be able to apply the basic principles of good management and then know how to introduce and properly maintain the most effective techniques of control. One such technique is a vigorously applied cost reduction program.

Elements of a Good Program

What are the necessary ingredients for a successful

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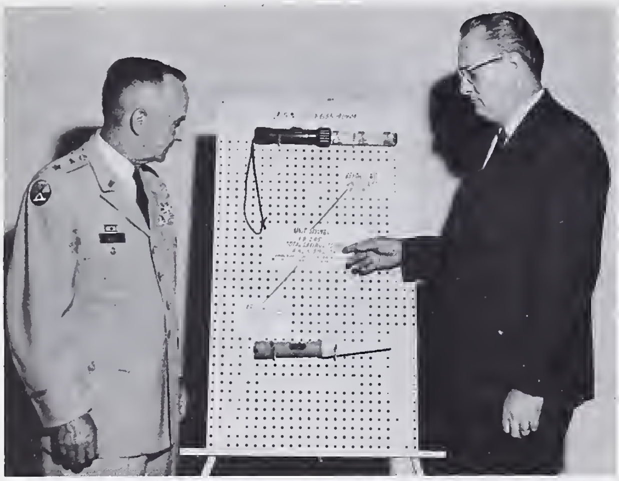
SHEDS LIGHT, SHREDS COSTS



Fred T. Cassety (right), DGSC employee, points out how his modified baton-flashlight saved $325,892, to Maj. Gen. Ray J. Laux, Center Commander.

A triple-purpose gadget that can be used as a flashlight, a taxi-direction baton for guiding aircraft on the ground, and a light for directing auto and truck traffic was one of the highlights of a recent Cost Reduction Award ceremony at the Defense General Supply Center in Richmond, Va.

Fred C. Cassety, a DGSC employee who questioned the cost validity of the baton flashlight previously bought for the military from one source at $10.45 each, decided that with a little engineering help he could make the standard military flashlight do the same job.

Cassety designed a screw-on wand costing only 27 cents for the standard flashlight priced at $1.09, with the result that he had an item for $1.36 that could match the accomplishments of the $10.45 original baton light. A total of $325,892 in savings was realized.

Three other employees, in addition to Mr. Cassety, were honored by Maj. Gen. Ray J. Laux, DGSC commander, at the ceremony. They are John J. Boyle, who saved the Government $145,156 by developing a more economical shipping container for acids; Aaron R. Martin, who reduced production leadtime in the procurement of sealed-beam headlamps for savings of $33,326; and Mrs. Lindy E. Oakley, who was honored for her administrative contribution in coordinating the cost reduction program.

The Defense General Supply Center, a field activity of the Defense Supply Agency, achieved a total savings of $13.8 million during the past fiscal year. In presenting awards before DGSC employees, General Laux pointed out that the Center went beyond its goals in all areas.

"Demands on the Government are growing," stated General Laux. We therefore anticipate that this year's cost reduction program goals will be even higher than last year's . . . probably higher than ever before.

" . . . as long as there are individuals such as those we are honoring today . . . people who are not afraid to meet new demands, and who care enough to display initiative toward their jobs, these newer, and higher goals which we expect to receive for FY 1967 will be no problem to us."

Taking part with General Laux in the award ceremony was Capt. H. A. MacQuarrie, U.S. Navy, the Center's director of planning and management. The Defense Supply Agency's headquarters was represented by Keith J. Adams and Edward E. Wolfe. □

MEMBER ARMY COST REDUCTION STAFF CITED

Pictured below is Col. Wm. R. Kugler, Chief, Office of Management Analysis, DCSLOG as he presented an Army Commendation Certificate to Mr. Raymond C. Chase, Jr., of the Army Cost Reduction Group for "outstanding performance of duty."

The citation signed by Lt. Gen. L. J. Lincoln, DCS LOG, Army Cost Reduction Program Manager states:

> Mr. Chase consistently displayed exceptional leadership ability, exemplary judgment and reliability, and the progressive attitude necessary for development of realistic savings goals, sound guidance, and clear reporting instructions which contributed immeasurably to the impressive success of the Army's Cost Reduction effort. By virtue of his outstanding accomplishments there has been established a sound base for the attainment of progressively greater savings and related improvements in the operation and management of the U.S. Army in the future.

In addition to the above citation, Mr. Chase has received a number of letters of appreciation and commendation from senior officials of the Army and OSD, and in July 1964 was awarded the Department of Army Decoration for Meritorious Civilian Service in recognition of his many contributions to the Army's cost reduction effort.

Recently Mr. Chase was promoted to Chief, Army Cost Reduction Group.

Protecting The Consumer Against Inferior Quality

DOD Quality Assurance Policy

By JOHN J. RIORDAN
Director for Quality and Reliability Assurance
Office of the Assistant Secretary of Defense
(Installations and Logistics)

Quality and the Public Interest

In both the private and public sectors of the American economy there is a strong and growing interest in theory, policies, and procedures for assuring that products and services conform to the quality* and reliability requirements of consumers. This interest has been catalyzed by increasing recognition of the social and economic costs to the public and to the Government of inferior quality. Understandably, product quality is of vital concern to the Department of Defense (DoD)—a buyer and consumer of vast quantities of supplies and equipment.

The purpose of this paper is to review the policies by which the Department of Defense protects itself against inferior quality, and the rationale by which these policies and practices have evolved. While policy, organization, and administration are parts of a single package, it has been considered advisable to examine policy matters separately in this paper. In a subsequent paper organization and administration will be discussed.

DoD policies for quality protection evolved as planned responses to sizable economic and technical problems. These policies represent a logical evolution from important theoretical, practical, and technical developments that can be traced back to the 1920's and 1930's. A brief review of these developments may help to cast current DoD quality assurance policies in proper perspective.

Background

At the outset it is no exaggeration to say that in both concept and practice the field of product inspection stood still from colonial times to the mid-1920's. During these years it was generally assumed that it was the responsibility of industry to "make sure they are right." In Government, as well as in industry, inspection was guided by the notion that products should be "100% inspected" even though "100% inspection" of industrial products is rarely possible.

It is, of course, possible to examine some characteristics of all units of production but it is not ordinarily possible to examine all characteristics of all units. In any event, the central consideration is not only how many items have been examined, but what characteristics of these items have been inspected and tested. The term "100% inspection" is meaningless unless it is related to specific inspections, tests, or observations. In the light of history, the notion of 100% inspection in its more credulous form (i.e., synonymous with "total") was a long-time roadblock to innovation in inspection theory and technology.

Mid-20's

In the mid-20's this roadblock was broken when mathematicians and scientists of the Bell Laboratories opened a new era with the publication of truly seminal papers in statistical theory and method. Shewhart led the way in 1926 when he called attention to the practicability of making statistically valid distinctions between manufacturing processes that are in control versus those that are out of control. Shewhart's work led eventually to the publication of an historic and classic text, "Economic Control of Quality of Manufactured Product" [1], a book that has had a lasting effect on thinking and planning among quality specialists throughout the DoD and industry. Logic dictated that if manufacturing processes can be controlled in a truly statistical sense, this control can be effected only by the producer and is his responsibility. Inherent also in Shewhart's theory was the practicability of objective verification, by industrial and Government buyers, of the effectiveness of these controls.

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*The word "quality" is used throughout this paper in a generic sense pertaining to all product physical and performance characteristics including reliability.

Concomitant with Shewhart's work, mathematical statisticians at Bell Laboratories addressed themselves to another subject—sampling inspection. Studies made at Bell Laboratories resulted in the publication of a number of notable papers. Among the most notable were papers published by the Bell Systems Technical Journal in October 1929 and January 1941 entitled "A Method of Sampling Inspection," and "Single Sampling and Double Sampling Inspection Plans." The authors were H. F. Dodge and H. G. Romig. Later—in 1944—Dodge and Romig included the substance of these papers in a landmark book entitled "Sampling Inspection Tables".[2]

World War II

With the advent of World War II, the Ordnance Department of the Army acquired the services of specialists from the Bell Laboratories, from other industrial organizations, and from various universities. The Army was confronted with the monumental problem of inspecting enormous quantities of materiel pouring out of factories that until recently had either been shut down or were inexperienced in producing military materiel. It was understandable that the work of Shewhart, Dodge, and Romig, and others, should become beacon lights in developing new ideas and techniques to confront these problems. Thus in the early 1940's the Department of the Army vigorously developed a new look in inspection, including a variety of new sampling techniques. This work led eventually to the publication of one of the world's most widely used sampling tables—Military Standard 105D.[3]

Not long after the Army Ordnance had undertaken modernization of its inspection practices, the Bureau of Ordnance of the Navy instituted a similar program. As in the case of the Army, this led to important theoretical and practical developments. The Navy addressed itself particularly to the problem of applying statistical quality control techniques to manufacturing operations in its own facilities (e.g., Naval Ordnance Plants) and to improving procurement inspection practices. The Navy was vitally concerned with making sure that sampling techniques were properly applied—i.e., focused on those characteristics of products that were in greatest need of control and examination.

It was well known in the 40's, as it is today, that testing and inspection programs frequently reflect subjective judgments rather than systematic, objective, and logical product analysis. Thus there was need for procedures by which such objective analysis could be conducted. The Bureau of Ordnance developed a procedure known as the "Classification of Defects" (C/D). Essentially this is an hierarchical ordering of potential defects in categories of seriousness—e.g., critical, major, minor. This made it possible to relate the intensity (e.g., level of sampling) to the significance of the product characteristics. The C/D [4] method, however, was only a partial answer to the problem of making inspection objective. There is still considerable subjectivity in the "picking and choosing" of quality characteristics to be examined.

Post-War Developments

After World War II the Air Materiel Command of the Department of the Air Force came on the scene and took the leadership in further developing a new approach to quality assurance. The Air Force directed its efforts toward defining more clearly the relationship between the consumer—i.e., the Government—and industry as regards responsibility for control of product quality and for inspection and testing. Essentially the Air Force addressed itself to examining the basic question of "who is responsible for what" in quality. The Air Force's answer was that control of quality is first and foremost the responsibility of producers. From the Air Force point of view, the term "quality control" meant more than statistical control. It included control of raw materials, calibration, cleanliness, technical data and costs, as well as emphasis on proper organization. Ultimately the Department of the Air Force published a pioneer specification [5] that reflected this perspective. It was cordially accepted and successfully adopted by the aircraft industry.

In 1954–55 the Office of the Secretary of Defense made a comprehensive technical and economic study [6] of DoD-wide inspection practices and policies. This led ultimately to the development of the "contractor responsibility" policy and program outlined below. In the meantime various organizations of the Department of Defense continued to develop (or to sponsor development of) new and improved techniques and guides to support the DoD quality assurance activities.

Entries [7–19] of the bibliography identify some results of this work.

DoD Quality Assurance Policy

DoD quality assurance policy is founded on a concept that is simple but potent, viz: manufacturers and vendors are responsible for substantiating by objective evidence that their products conform to the buyer's requirements. Accordingly, it is the policy of the DoD that contractors are obligated to provide reasonable proof that their products were manufactured under quality controlled conditions and were inspected and tested by them prior to delivery. This is the very antithesis of the *caveat emptor* philosophy that prevails quite widely in the consumer market.

If the manufacturer is responsible for inspecting and testing his products, what, then, is the role of the buyer—the Department of Defense? The buyer's role is to make sure the producer has fulfilled his obligations. This is accomplished by evaluation of the contractor's quality and reliability program and by reinspection and retesting of the product to the extent necessary to verify the completeness and accuracy of the contractor's quality control, inspection, and testing programs and related reports. The amount of DoD inspection and testing is a mathematical function of the integrity of the contractor's objective evidence of quality. In practice, this means that in some instances the DoD may temporarily, as a defensive measure, repeat the inspection and tests performed by the contractor. In other cases the DoD may sample a small fraction of the contractor's product basically as in an audit. If, in a seller's market, products are submarginal, then the DoD has little choice but to perform intensive inspection and testing and, in effect, screen out defective material. Ordinarily, however, contractors perform in good faith and conform to both the spirit and the letter of their contractual obligations. To do so is in their interest as well as in the interest of the DoD.

The concept of contractor responsibility, developed in the mid-50's and later improved and implemented in the late 50's and early 60's, was adopted for a number of very practical reasons. The most compelling reason was that the DoD recognized that Government inspection, however intensive, cannot in itself provide adequate protection against receipt of defective material. There is a trite but nonetheless valid axiom among quality control specialists that "quality can't be inspected into a product, it must be built in." This is particularly true for defense supplies which represent not only an enormous expenditure of dollars but also an enormous variety of products ranging from shoestrings to space hardware.

Even if the DoD had adequate resources of personnel and facilities to inspect all hardware, piece by piece, the outcome would still be less than satisfactory. One reason for this is that substantial quantities of military equipment such as aircraft, missiles, fire control, and many types of electronic equipment, are very complex and cannot be tested conclusively for such characteristics as reliabality and life. Not infrequently the most critical characterisics of a product can be tested definitively only by test to destruction. Under these circumstances the best protection the consumer can get against unreliability—assuming sound design—is assurance from the producer that certain controls are exerted during manufacturing. These controls may range from the testing of raw materials through various kinds of machine controls and packaging and labeling controls. Then, too, the contractor responsibility concept came into existence to cut costs of production by reducing scrap and rework and by eliminating duplication of inspection and testing between the DoD and producers. Accordingly, the DoD accents the essentiality of defect prevention during manufacturing and the utilization by the Government of the contractor's quality control data in determining product acceptability.

Implementation of Concepts

It is easy enough to project concepts and ideas. The trick is to translate a potentially useful idea into a useful tool. More specifically, the challenge confronting the DoD from the mid-50's to the present has been to convert a concept into a contractual instrument and to provide practical guidance to military agencies in enforcing this instrument. This was accomplished in three steps.

The first step was the conversion of the concept, outlined above, into policy statements and the issuance of these statements as DoD instructions and regulations. It would be repetitive to enumerate the substance of these statements in this paper. They have been summarized [20] elsewhere and are itemized in references [21–25] in the bibliography.

The second step was to translate policies into contractual understandings. This was accomplished primarily by appropriate revision of current military product specifications and by the development and issuance of certain "systems" specifications for inclusion in contracts. As for product specifications, a statement has been included in all military specifications which explicitly provides that "the supplier is responsible for the performance of all inspection requirements as specified herein." Thus contractors are informed clearly that the tests and inspections set forth in a product specification apply to them. They must perform these inspections and tests.

But in themselves product specifications do not ordinarily provide adequate contractual protection to the consumer. As mentioned previously, there is further need for assurance that the producer has taken certain actions to assure that the manufacturing environment is favorable to quality—e.g., drawing control, recordkeeping, materials control, organization. Therefore, apart from product specifications, DoD quality assurance policies are further implemented by systems-type specifications. Separate specifications, were written for complex and for noncomplex hardware. Obviously the kind of controls necessary in the aerospace industry are more numerous than those, let us say, for the textile industry. The important consideration here is that by updating traditional product specifications and developing new systems specifications it has been possible to define clearly the producer's quality obligations. The requirements of these various specifications reflect the kinds of things that would normally be done by a well-managed industrial organization. Two pivotal specifications [26, 27] are identified in the bibliography.

The third step in converting policy into action was the development of guides and techniques for use by DoD personnel in evaluating the contractor's conformance to contractual requirements. Numerous documents have been published for this purpose by various agencies at the DoD. Two [28, 29] of these are widely used throughout the DoD.

Current Status

The DoD policies and programs for quality protection, as briefly described in this paper, currently encompass all industries doing business with the DoD except the construction industry. If imitation is a symptom of success, then this program is definitely successful. With appropriate retailoring it has been widely adopted, in whole or in part, by many Government organizations and industrial enterprises, domestically and overseas.

This program is aimed at defect prevention and at minimizing duplication of testing between producers and buyers. Costs are thus reduced. As an indicator of cost reduction possibilities it is interesting to note that in 1955 the dollar value of the DoD inspection workload was approximately $20 billion. Approximately 17,500 inspectors were employed to do this job. Today approximately $30 billion of supplies and equipment are evaluated for acceptability by 16,000 quality assurance personnel. It may be suggested that some Government quality assurance costs and personnel requirements have been absorbed by industry. This may well be true. But it is important to keep in mind that if quality assurance expenditures in industry have increased (a questionable presumption), losses due to rework and scrap have substantially decreased. On balance, savings well exceed costs.

Conclusion

The first line of defense against inferior products is a system of specifications by which producers and vendors are informed clearly and explicitly of their contractual obligations for product quality. The second line of defense is the establishment by the consumer of a capability to assure that producers conform to their contractual obligations. This capability must incorporate up-to-date techniques that permit flexibility in concentrating consumer quality assurance effort where it is most needed. Even an implied suggestion that the buyer (or consumer) should routinely screen (i.e., separate good from bad) products undermines the basic concept that the producer is responsible for product quality and for its substantiation. The role of the consumer is not merely to accept or reject products but to make sure the producer's manufacturing and quality control systems are inherently capable of generating satisfactory products. The interests of both producers and consumers are mutually well served by such an arrangement.

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COST REDUCTION COORDINATORS MEET

Coordinators from the Marine Corps and the bureaus, offices, and commands of the Navy Department are shown at one of their regular monthly meetings with Cost Reduction Program personnel. These scheduled meetings are held to discuss problems, report progress, and consider proposals for furthering the Department of the Navy's Cost Reduction Program efforts.

TECH DATA COSTS TRIMMED

Western Electric Company, Inc., recently reported the following technical data savings in the Defense Contractor Cost Reduction Program:

—Prepared composite parts lists to utilize repetitive information formerly shown on separate lists . . . saving $113,000.

—Incorporated supplemental data on draftsman's layout drawing instead of preparing separate formal documentation . . . saving $757,000.

—Eliminated Nike-X subassembly drawings and electrical parts list drawings and improved drafting practices . . . saving $1,102,000.

COST AND VIP ACRONYMS

From ITT Federal Laboratories in Nutley, N.J., comes word that COST stands for Committee On Saving Techniques. COST is under the guidance of the company's Value Engineering/Cost Reduction Department.

Within COST is a smaller group known as the VIP (Valuable Idea Person) Club. Membership in this club is exclusively for those who contribute verified cost savings of $25,000 or more in each calendar year. Of the several hundred contributors of cost saving ideas, 16 have achieved the elite status of membership in the VIP Club in the past year. Each of the 16 members received a collector's item uncirculated silver dollar over 50 years old, encapsulated in clear lucite together with the recipient's name and the VIP inscription. ☐

THE ABC's OF COST R

GOALS: ***How to set them.*** **IMPROVEMENT:** ***Not proof of waste.***

EFFICIENCIES: ***Don't count them all.*** **MOTIVATION:** ***Two sure ways.***

The Mission

The Cost Discipline—Government administrators frequently are accused of having no incentives to hold costs down. Obviously, the people who say this never had to meet a cost reduction goal.

The fact is that the administrator in government today faces a fiscal discipline just as tough and just as exacting as the profit and loss statement. That discipline is the cost reduction program.

The men and women who manage that program have the best jobs in government. There is no civil service classification series nor any military occupational specialty to haunt their performance. They have an implied license to immerse themselves hip-deep in every phase of operations. The concept they pursue is above criticism.

A cost reduction administrator has only four responsibilities:

(1) to understand the philosophy of the program;

(2) to manage the cost reduction system;

(3) to insure a documented record of savings that will stand the test of independent audit; and

(4) to motivate people to increased cost reduction activity.

The Philosophy

The philosophy is simple: Fulfill a governmental objective with measurably fewer resources than past experience and current practice appear to demand.

All government organizations have objectives. The Department of Defense has two:

(1) Develop and procure the force structure necessary to our military requirements without regard to arbitrary budget ceilings; and

(2) Procure and operate this force at the lowest possible cost.

Military requirements are designed to meet the first objective. The Defense Cost Reduction Program is directed at fulfilling the second objective.

The basic military requirement is developed at the highest levels of government. The elements of the military requirements are spelled out in the Five Year Defense Program. That program specifies X number of combat divisions, X number of combatant ships, X number of aircraft and missile wings, and X amount of support for the foregoing.

Qualification of Resources—Requirements can only be satisfied by applying resources. Resources consist of men, material, time, and money. Costs of the first three of these resources can be expressed in terms of the fourth: Money. Reduced to that common denominator, the resources for meeting the requirements of government (which, in turn, meet the objectives of government) total $112 billion this current fiscal year. That is the size of the Government's Administrative Budget for FY 1967.

The budget contains an estimate of government expenditures for the fiscal year. That estimate is premised basically on experienced cost. When actual cost turns out to be less than experienced cost, the difference is attributable either to an efficiency or to some factor not related to efficient use of resources.

An example of a factor not related to efficiency is a cut in force structure. That kind of action usually is related to a change in the threat or the availability of a more desirable military strategy. Any resulting drop in expenditures represents a cutback in a military requirement rather than a more economical way to provide resources to meet a military requirement.

Another kind of saving not related to efficiency occurs when the economic forces in the market place lower the cost of a product and Defense gains by the price drop.

Lower costs resulting from factors not related to efficiency are never included in savings credited to the Defense Cost Reduction Program.

Efficiency and Action—What is efficiency? Efficiency is any new, improved, or intensified management action that enables the Department of Defense to meet its military requirement with fewer men or in a shorter time or with less money or material than experience and current practice dictate.

A management action is any clearly recognizable, intentional positive step that changes an existing policy,

JCTION MANAGEMENT

By

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procedure or practice so as to enable the Department of Defense to obtain the same value for less money or more value for the same money.

The management action must be "new, improved, or intensified."

A new action is one that reverses a prior practice or represents such a substantive departure from existing practice as to constitute a fresh and novel approach.

An improvement action is one that streamlines an existing system or extends an existing efficiency.

An intensified action is one that promotes increased use of an existing efficiency practice.

Not All Management Actions Are Creditable—Not all savings produced by new, improved, or intensified management actions are credited to the Defense Cost Reduction Program. Those not credited fail for one or more of the following three reasons:

(1) they cannot be measured with the precision demanded by the Program—at least not with the measurement tools presently available, or

(2) they preceded or were initiated prior to the base year from which all progress is measured in the Program, or

(3) they are either never reported or else are not adequately reported for inclusion in the Program.

Waste v. Better Ways—The Program suffers the misconception that "the greater the savings, the greater the waste that must have existed." The fact is that nearly all savings are generated by finding better ways to do things that were already being done as well as the then existing state of the management art permitted them to be done. For example, it was not an elimination of waste when an Air Force captain found a way to prevent jet engine turbine blades from becoming corroded. Before his discovery there was no known "better way" to treat the blades against corrosion. It is waste when a manager confronted with similar corrosion problems knows about this technique and does not use it.

The gut objective of a cost reduction program is to get people to think of improvement, to discover better ways, and to institute these improvements as quickly as is humanly possible.

So much for the philosophy of the Program. The cost reduction administrator's second responsibility is to bridge the gap between philosophy and practice. He does this by managing a system.

System

The cost reduction system has six elements.

Areas of Opportunity—The first is the identification of areas of opportunity. An area of opportunity is a collection of functions in which there exists a potential for savings. Twenty-five such areas are identified in the Defense Cost Reduction Program. They run the gamut from requirements through procurement to operations. Some were identified by analyzing criticism of Defense management by the Congress, the Government Accounting Office, and special investigating bodies like the Hoover Commission. Other areas were identified by internal management audits, by analysis of major functional areas, by appraisal of major dollar impacts on budgets, and by investigation of suspected problems by astute cost reduction administrators.

Areas of opportunity serve not only to categorize savings for management appraisal but also—and even more important—act as guideposts to show would-be savers the direction toward which their energies should be turned.

Avenues to Savings—A well-constituted cost reduction system should do more than cite and define areas of opportunity. It should also suggest specific avenues to savings within each area. For example, the basic Defense instruction for cost reduction lists 12 avenues to savings for the area of opportunity entitled "Improved Equipment Maintenance Management." Among these are: extend intervals between overhaul; eliminate repair and/or overhaul when replacement is more economical; reduce scope of inspections.

Suggestions for avenues to savings are necessarily quite general in an instruction having broad application. The really specific ideas must come from the cost reduction administrators at local levels. Only they have the needed familiarity with the operations of their organizations and knowledge of the particular problems and opportunities peculiar to their organizations. For example, the Southeast Division of the Navy's Facilities Engineering Command recently issued a list of 141 ways to save money in the management of real property.

Measurement—Once an area of opportunity is recognized and its potentials identified, the next step is to measure the impact of each savings action within the area.

Measurement consists of ascertaining unit costs before and after the action, multiplying the difference by the number of units affected, and subtracting the offsetting costs. (A unit may be an item of hardware, a function, an organization or any other basic element in an homogenous class whose costs are directly influenced by the management action.) For example: the Army redesigned a cartridge link from a two-piece welded assembly into a one-piece loop; the difference between "before" and "after" costs was 4 cents as the result of eliminating one weld; a 4-cent saving on each of 14.6 million units aggregated $635,100 in FY 1966.

The cost reduction administrator frequently will face situations considerably more complex than the one in the above example. When this occurs, it is his responsibility to devise a suitable measurement technique. If the computation is realistic and clearly explained in the claim for the savings, it will be supportable to the auditors.

Cost reduction measurement is an art—not a science. The results were never intended to possess the mathematical nicety of a bank statement. At the same time, the computation should reasonably portray the savings; and if there are marginal differences of opinion on true value, these should always be reconciled on the conservative side. It is far better to eliminate questionable savings than to include them and detract from the integrity of the Program.

Goals—Measurement for the Program as a whole is nothing more or less than a function of quantifying progress in efficiency, economy, and effectiveness. But progress from where? To where? Some common starting point is required for the Program as a whole to adequately show progress for all areas of opportunity. This starting point, or base year as it is more formally called, is always the year immediately preceding the one in which the action is taken.

In setting goals, the question is: How much by when? There are two goals for each area of opportunity. One goal represents the estimated impact this year of actions taken this year. The other goal is the sum of the savings impacts expected this year and the next two years from actions taken this year.

Goals are set for each new area of opportunity at the time the area is established. Thereafter, the goals for each area are set annually. Goals are open to revision at any time—but only for good and substantial reasons.

No one expects perfection in the predictive arts—only reasonableness. Perhaps the best assurance of reasonableness is that goals—in Defense—are first developed by the people charged with achieving them, that is, by cost reduction administrators at the operating and intermediate levels of the organization. You may say that this fosters mediocre achievement since only safe, easily achievable goals will be set. This would be true except for the fact that every goal-setting manager knows that his proposals will be evaluated at a higher level and—if found wanting—will be negotiated higher with the goal setter.

Why would a higher headquarters care if its subordinate units develop goals that are easy to attain? The higher headquarters is forced to care because its own goal—a combination of all of the goals of its subordinate elements—is carefully reviewed by top management. Evaluations of adequacy of goals are based on experienced data in each area of opportunity, comparisons with goals of other like organizations, progress to date, and forecasted changes in levels of activity as reflected in budgets and operational plans. Surprisingly, very few negotiations of these self-developed goals result in impasses that require decisions by top management.

As the years go by, fewer administrators are incurring ulcers over the goal-setting process. The fear that a goal set too high will be considered unchangeable has proven groundless. Likewise, so has the fear of repercussions from failure to achieve a goal when the shortfall is attributable to circumstances beyond the administrator's control. In the 5-year history of the Defense Cost Reduction Program the annual goals for nearly all areas of opportunity have exhibited a tendency to be understated.

Goals serve two functions:

—They establish a rate of progress believed to be possible;

—They motivate by presenting a challenge.

It is the cost reduction administrator's responsibility to see that the goals for his organization meet these criteria.

Organization—Areas of opportunity, savings avenues, measurement, and goals do not give life to a system. People do—but only when they are organized to that end. The cost reduction administrator may be a specialist responsible for the program in all facets of his specialty. He may be a generalist in cost reduction by being responsible for the entire program or several portions of it at his activity. The program necessarily is organized both ways. Someone has a cost reduction administrative responsibility, or should have, in every functional area that can make a contribution to the program. The larger the number of formally contributing functions at any single activity, the larger the number of part-time cost reduction administrators at that activity. The generalist operates from a single focal point in each activity and administers the total program.

The full-time cost reduction administrator is a rare bird. He accounts for less than 15% of the effort applied to the Defense Cost Reduction Program. The remaining 85% of the administrative effort is contributed by employees whose primary responsibility is something other than cost reduction. We are talking now only about people actively engaged in running the program, not about the many thousands of employees whose ideas contribute to the savings.

About half of the administrative effort devoted to the program—at all levels—is professional, as distinguished from secretarial and clerical.

Six percent of the total administrative effort is applied in Washington; 94% in the field.

If a model cost reduction organization were to be suggested for a major activity, it would probably include:

1. Central cost reduction office (full-time).
2. Part-time contact points in all contributing functional areas of opportunity.
3. A policy committee consisting of the heads of each staff and operating element to pinpoint local areas of opportunity.
4. A cross-feed committee to appraise: (a) cost reduction ideas implemented in one section of the organization for possible application to other sections; and (b) cost reduction ideas implemented in other organizations for application within its own organization.
5. Channels for accumulating savings from subordinate units and reporting these savings upward.
6. An arrangement with the responsible audit agency for validating claimed savings.

This last point deserves special mention.

Validation

Audit Must Be Independent—Managers who face savings goals may be inclined to stretch a point now and then. That is why cost reduction programs have auditors.

There is a well-founded school of thought that Damon should not be charged with policing Pythias. The DoD subscribes to the view that the frailties of human nature should not be tried by expecting any auditor to reject savings claims that would help his boss meet a goal. Consequently, in Defense the audit responsibility is with the DoD Comptroller. The responsibility for managing the program is with the Assistant Secretary of Defense for Installations and Logistics.

What is the auditor's responsibility? He reviews the documentation, validates the derivation of the savings, and assures that the savings stemmed from "new, improved, or intensified management actions."

Some 200 man-years of audit are being devoted annually to the Defense Cost Reduction Program. In FY 1966 auditors rejected about 40% of the total savings claimed by logistics managers. This rejection rate gives some idea of the number of program-audit conferences in which a cost reduction administrator is likely to be engaged.

Common Issues—The most common differences of opinion between auditor and program manager involve:

—Methods of quantifying claims.

—Determining which area of opportunity is credited.

—Conformance with the principle of "new, improved, or intensified management action."

Happily, very few of these differences of opinion turn into real Donnybrooks. When the local cost reduction administrator cannot reach agreement with the local auditor on a particular claim, the matter is referred to a higher departmental headquarters. If agreement cannot be reached within the military department, the problem is referred to the Office of the Secretary of Defense. Final decisions are made jointly by the ASD(I&L) and the Defense Comptroller.

Building the Record—The cost reduction administrator has a responsibility to see that every claimed saving is documented. Documenting means that there is a description of the management action producing the saving, a definitive computation of the saving including offsetting costs, a citation of the fund or appropriation affected by the saving, the name of the organization claiming the saving.

In FY 1966 nearly 75,000 documentations were received by Defense headquarters agencies. The aggregate documentation at field level would exceed that substantially since actions valued at less than $100,000 may be shown in summary form from each field activity.

Undoubtedly the biggest opportunity for many organizations to realize savings against their goals is in tightening up the system for documenting and reporting savings. The Cost Reduction Program monitor at the Air Force Western Test Range insisted on thorough documentation and, as a result, almost 100% of his organization's claims were validated by the resident auditor.

Advocacy and Credibility—Some cost reduction administrators tend to be indiscriminate advocates of every savings claim. That kind of attitude does the program a disservice. The objective is not to outpoint the auditor in debate but to arrive at an honest, aboveboard evaluation on the acceptability of each savings action. Conversely, there are times when the administrator must be an advocate in order to do justice to the program and to the organization or individual submitting the claim. The integrity of the program should always be his prime consideration.

Program integrity makes the cost reduction effort a mirror of realistic management progress. The allowance of questionable claims could make the program a numbers game. Once that happens the program loses credibility—and that is the stuff of which program impetus and motivation are made.

Motivation

Selling the Program—This brings us to the question: What really makes this program tick? The answer, of course, is "people." People, unfortunately, have a failing. They are seldom as keenly interested as the cost reduction administrator is in his problems—and his primary problem is to motivate people to reduce costs.

He may suffer much the same reaction as the club treasurer who tries to peddle his annual report. The reception frequently is one of polite but unenthusiastic attentiveness, nurtured by the feeling that cost reduction, like taxes, is a kind of necessary nuisance and that people who deal in mountains of figures somehow must be tolerated. The most important mission of the cost reduction administrator is to overcome and dissipate this attitude. He must motivate people to cost reduction, and he can do this in two ways: (1) by building a cost reduction environment, and (2) by applying individual incentives.

Creating the Environment—A number of factors create a cost reduction environment. First, there is the credibility of the program. Worthwhile programs attract converts and phony programs do not endure. The uninitiated must be shown that there is a direct link between cost reduction and improved Defense. One way to do this is to show that savings from funds already appropriated help meet new and unbudgeted (but authorized) requirements. Here are two examples:

—Army converted procurement of a combat vehicle from sole-source to competitive, saving $2.7 million. The funds were reprogramed to offset increased cost of test equipment in another program.

—The Marine Corps used $458,000 in savings to reduce requirements deficiencies in infrared spotlights, special binoculars, and replacement components for bulk fuel systems. That $458,000 saving was derived from a Marine Corps review of requirements for the 105-mm. self-propelled howitzer, floodlight trailers, lubrication trailers, and steam-cleaning trailers. Appropriations for these items had been based on "assault" rates which consider the abnormally high losses sustained during the initial phase of an amphibious assault. A review disclosed that these items would not actually be consumed on an "assault" rate basis.

The cost reduction administrator should also make known to his organization that this link between cost reduction and improved Defense extends beyond the dollar sign. For example:

—A redesign of the aluminum frame that supports the soldier's rucksacks in the field not only saved the Army $93,000 last year but also doubled the strength of the frame and ended the complaint that web straps shifted out of place.

—A Navy engineer developed a process of reclaiming worn jet engine turbine vanes at 33 cents per vane instead of buying new ones at $35 each. The reclamation process produced vanes superior to new ones while saving $9.7 million in FY 1966.

The Program has budgetary implications—and people should be aware of these. As a result of the Defense Cost Reduction Program alone, the Federal budget in FY 1964 was $1.9 billion less than it otherwise would have been; the FY 1965 budget was $2.5 billion less; the FY 1966 budget was $4.1 billion less.

In its 5 years of operation the Defense program has saved $14.2 billion. That figure is almost equal to the FY 1967 Federal Administrative Budget for all U.S. health, labor, welfare, education, and agriculture programs.

The cost reduction administrator can also point out that, despite the fiscal exigencies of Southeast Asia operation, the Defense share of Gross National Product in 1966 was 7.6%, or 1.3% less than it was in FY 1962. You can bet that the Cost Reduction Program carried considerable weight in that drop.

Making known both the fiscal and operational impacts of the Program helps create an environment of cost-consciousness. So does top level interest. This program has certainly had that kind of interest at national levels and—for the most part—at local levels. While dollar savings goals for each local activity serve as a powerful stimulant, the cost reduction administrator should shake management calm now and then with new motivational ideas and recommendations for program improvement. If he does not constantly prod upward as well as laterally and downward, he may find that inertia has a habit of snowballing.

Cost reduction films and publications and campaigns like Navy's War on Waste (Project WOW) help heat up the cost reduction atmosphere.

Motivating the Individual—The cost reduction administrator will invariably find that creating a favorable environment is only half the battle. Environmental incentives must be supplemented with individual incentives. One management tool for this purpose is the Incentive Awards Program. Legislation passed last year now makes it possible to make cash payments for beneficial suggestions to members of the Armed Forces as well as to civilians. In FY 1966 cost benefits accruing to Defense from beneficial suggestions and superior accomplishment awards exceeded $211 million. Not all of these dollar benefits are reportable as savings in the Defense Cost Reduction Program. *If* the cost benefit accepted for an incentive award is referred to cost reduction program channels, is subjected to the criterion of "new, improved, or intensified management action", meets the standards of measurement prescribed for cost reduction savings, is thoroughly documented pursuant to cost reduction program requirements, passes the scrutiny of an experienced cost reduction administrator, and faces the acid test of audit—then and only then does it become accepted as a savings in the cost reduction program. The fact that not all cost benefits from incentive awards are accepted in the cost reduction program should in no way detract from use of incentive awards as a strong motivational tool.

For that matter, not every cost reduction makes someone a candidate for an incentive award. As a matter of fact—and this is little recognized even by experienced cost reduction administrators—the most sizable cost reductions result from the combined efforts of many, many people performing their everyday jobs—each one just a little bit better because of the stimulus of the Cost Reduction Program.

Their aggregate effort coupled with improvements in management policy and management systems produces an intensification of program performance. That intensification then becomes quantifiable as a cost reduction.

Savings in the Defense Cost Reduction Program are attributable to actions from five sources:

—Broad-based intensification efforts.

—Departmental policies (e.g., base closure program which saved $794 million in FY 1966).

—Groups within the organization where no single person makes any particularly outstanding contribution (e.g., large-scale requirements studies).

—Defense contractor contributions (e.g., qualifying value engineering actions).

—Individual initiative and insights.

The last-cited category offers the greatest opportunity for the Incentive Awards Program to stimulate cost reduction results. It should be noted that the Incentive Awards Program also provides opportunities for recognizing group accomplishments—and that this approach, unfortunately, is too often overlooked by administrators.

The Assistant Secretary of Defense for Manpower, in a recent article on incentive awards noted: "There undoubtedly are persons responsible for major cost reduction achievements who are eligible for awards who are not being recognized; supervisors should be alert to take advantage of the wide range of awards which are available." (Spring 1966 issue of The Journal.)

We feel that cost reduction administrators have a similar responsibility to overcome the modesty of many deserving cost reducers who have not made their accomplishments known through incentive awards channels. Apart from the Incentive Awards Program, there are many other forms of recognition that the cost reduction administrator can use, such as: local cost reduction awards ceremonies and poster-type exhibits, publicity in the local press, and nomination of individuals for the Annual Presidential Awards Ceremony.

Conclusion

These, then, are the four responsibilities of the cost reduction administrator:

—Understand the philosophy.

—Manage the system.

—Document the savings.

—Motivate people.

Now, you may ask, if cost reduction has no civil service series or military occupational speciality, what is the future in it for a hardworking cost reduction administrator? We can only offer an example. We know of one young Air Force captain who pursued cost reduction so vigorously that he subsequently became Secretary of Defense. ☐

IMPATIENT FOR OUTPATIENT SAVINGS

If you, Mr. Private Citizen, were going to the hospital just for a physical examination, to have a sore throat checked, or for routine outpatient treatment, it's a good bet you wouldn't call an ambulance to take you there. Neither would Miss Rose Brown a civilian employee of the 3415th USAF Dispensary, Lowery AFB, Colorado.

Miss Brown noticed that metropolitan ambulances were being used, about eight times daily, to transport ambulatory patients between Lowery and nearby Fitzsimmons General Hospital. She wondered if there wasn't some less expensive way to do the same job just as well.

After some thought, Miss Brown suggested that by using a carryall vehicle, which used standard gasoline instead of high test, more ambulatory patients could be transported—and at less cost per trip. Also, the ambulances would be more readily available for transporting bedridden patients, or for emergency uses.

This suggestion has saved $624 thus far for Lowery AFB and additional savings are expected in the future. □

INCENTIVE PACT—SEALED WITH A SAVING

An example of how a contractor can use the incentive clause in his defense contract to save money both for himself and the Government was reflected in approval of a packaging suggestion by the Defense Industrial Supply Center (DISC), Philadelphia, Pa., a field activity of the Defense Supply Agency.

Dickey Manufacturing Company, Premier Seal Division of St. Charles, Ill., proposed that a contract for self-locking seals be amended to permit them to be tied in bundles for shipment instead of being contained in wooden boxes, manufacture of which raised the cost of the articles.

Estimated annual savings for the Government resulting from the change, evaluated by Richard Hunt, a DISC packaging specialist, will be $9,360. Actual savings to the Government on the first order placed under the modified contract amounted to $3,625. Because of the incentive clause, the Dickey Manufacturing Company realized a like amount as its share.

Self-locking seals are used primarily on railroad cars to prevent tampering. The seal consists of a strap of flexible metal fitted to one end with a locking device. The seal is activated when the end opposite the lock is fitted into the device. □

VE ADMINISTRATOR HONORED

In an award ceremony held at the Pentagon on October 20, the Joint Service Commendation Medal was presented to Colonel Arthur D. Powers, USAF, by Deputy Assistant Secretary of Defense George E. Fouch.

Colonel Powers was cited for his "outstanding achievements and contributions to the improvement of Defense management pertaining to strengthening the DoD Value Engineering Program by distinguished and imaginative leadership."

The Value Engineering (VE) Program achieved $495 million in audited savings to DoD during FY 1966.

Colonel Powers completed his three year assignment as DoD Director of VE on October 20 and has reported to his new assignment at Scott AFB, Illinois.

DEPARTMENT OF DEFENSE COST REDUCTION PROGRAM

[In millions of dollars]

	Fiscal year 1966			FY 1966 goal to be realized by FY 1968
	Hard savings	Cost avoidance and decision savings	Total savings	
Army	$786	$567	$1,353	$1,164
Navy	1,508	330	1,838	1,827
Air Force	2,001	940	2,940	2,721
DSA	163	35	198	185
DCA	3	....	3	2
MAP	3	6	9	100
Total	$4,464	$1,878	$6,341	$5,999

ARMY MATERIEL COMMAND HOLDS AWARDS CEREMONY

The Army Materiel Command climaxed its Cost Reduction Week activities on August 26 with an awards ceremony held at its headquarters building in Washington, D.C.

Lieutenant General W. B. Bunker, Deputy Commanding General of the Command, presented 29 awards to AMC headquarters personnel following a keynote address on behalf of General F. S. Besson, Jr., Commanding General, AMC.

Isadore Berg, the Command's Cost Reduction Program Manager, served as master of ceremonies. In his opening remarks Mr. Berg said, "Against a goal of $618 million, AMC has achieved validated savings of $888 million with $45 million of additional savings still to be adjudicated. It appears our savings could be as high as $930 million in hard and cost avoidance savings for FY 1966."

General E. J. Gibson, Assistant Deputy Chief of Staff for Logistics, represented The Department of the Army at the ceremony. He stated that while the Army had exceeded its goal by 17%, AMC had surpassed its savings target by 58% thus contributing in very large measure to the Army's overall cost reduction accomplishments for the year. In commending AMC for a job exceptionally well done, General Gibson recognized the tremendous effort that had been made not only at the AMC headquarters level, but also at the various commodity commands, depots, and throughout the whole AMC complex.

He attributed the success of the AMC program to the motivation of each and every individual to do a better job. General Bunker noted that AMC's substantial progress had been achieved under the watchful eyes of an independent "umpire."

General Bunker pointed out that AMC's savings resulted from at least 23,000 separate actions. He said that next year it is hoped at least 50,000 actions can be credited to the cost reduction program. This would mean participation by one out of every three AMC employees. ☐

Maj. Helen B. Meisner, Army Materiel Command Cost Reduction Representative for "Major Items of Equipment", receives a Department of the Army Commendation Certificate from Lt. General W. B. Bunker, Deputy Commanding General, U.S. Army Materiel Command.

The President: “WE

On September 16, 1966, The President asked all Federal departments and agencies to improve the procurement and management of property in seven areas. On October 17, 1966, Deputy Secretary of Defense Cyrus Vance replied to the President, citing “our well established Cost Reduction Program” as a vehicle for achieving the Presidential objectives. Also, on October 17, Secretary Vance directed each senior military and civilian official in Defense to “improve the performance of his organization in behalf of the Cost Reduction Program.” These three memoranda follow.

THE WHITE HOUSE
WASHINGTON

September 16, 1966

MEMORANDUM TO THE HEADS OF DEPARTMENTS AND AGENCIES:

The Federal Government spends more than $40 billion per year for procurement of supplies, materials, and equipment. More than three-fourths of this property is used by the Department of Defense, most of which is military equipment and supplies. In addition, the Government spends more than $25 billion for procurement of services and there are substantial expenditures for purposes directly related to procurement, such as for transportation, warehousing, and distribution of property.

I know that progress is being made in your efforts to reduce costs in this area as in others. But we can do better.

For example, last year the Government declared excess property which cost $4.6 billion. The average volume of excess property generated during the last five years was $4.4 billion per year. Some of this property was redistributed for further use within the Government but most of it was sold and the average selling price was slightly more than 6 percent of the amount we paid for it. Much of this property had never been used. Costs can be reduced by eliminating unnecessary purchases which cause these excesses. When excesses cannot be avoided, costs can be reduced by redistributing them to avoid procurement.

I want a special sustained Government-wide effort started immediately to improve the procurement and management of property. Each of you is requested to —

- Establish effective controls over proposed procurement actions to prevent purchases of items that are not actually required. Eliminate procurement of excessive quantities or of items being requested only to satisfy a desire for latest styles or designs. The entire organization must be instilled with a "make do" attitude.
- Review pending procurement orders which have not been delivered. If delivery will result in inventory levels higher than necessary, take action to cancel orders or reduce quantities where this can be done without incurring penalty charges.
- Review inventory levels of all supplies and equipment on hand in your agency. Whenever the quantity of an item is larger than necessary, take action to correct the condition by (1) stopping procurement until inventories are brought down to the proper level, or (2) transferring a portion of the inventory to an office or agency which needs it and can use it effectively, or (3) returning a portion to the wholesale manager, or (4) reporting it excess.
- Eliminate slow-moving items from your supply inventories which can be obtained readily when needed from the wholesale supply activities of the Department of Defense or the General Services Administration, or from commercial sources.
- Initiate a review of equipment which has been assigned to individuals or to organizations within your agency. If any items are not being used effectively, require that they be returned to stock or placed in pools from which they can be assigned as needed. If this "house-cleaning" effort results in an accumulation of items which are not needed, transfer them to a place in your organization where they will be used effectively or report them excess.

AN DO BETTER”

- Review the handling of excess property lists in your agency to assure that (1) such lists are carefully examined and excess or rehabilitated property is used in lieu of new procurement whenever possible, and (2) property is not claimed from excess lists unless it actually is needed for known programs.
- Review the procurement and property management programs of your contractors which purchase supplies and equipment for which the Government must pay or which have Government-owned supplies and equipment in their custody. Such contractors should observe the same policies prescribed for Government agencies for avoiding unnecessary procurement, eliminating frills, curtailing inventories, using excess property, and insisting upon full utilization of assigned equipment.

In furtherance of this effort, the Secretary of Defense and the Administrator of General Services will—

- Develop an effective system for redistributing Government property to the places where it is needed most. I am aware of the excellent work along this line which has been accomplished through use of electronic data processing systems at the Defense Logistics Supply Center in Battle Creek, Michigan. This work should be accelerated and should provide a means not only for redistributing excess property but also for improved utilization of inventories which have not been reported excess and which should not be disposed of as surplus.
- Accelerate actions which are currently underway to eliminate avoidable duplication and overlapping in management of supplies among inventory managers.
- Initiate effective procurement and inventory reporting systems which will enable the military services and civilian agencies to identify problems and to take corrective actions more promptly. Unneeded or unduly burdensome reporting requirements should be avoided but it is necessary to have reliable information concerning inventories, procurement volume, usage rates and expected requirements if property is to be managed economically.
- Accelerate efforts to reduce the number of items in the Government's supply systems by (1) establishing effective controls to prevent new items from entering the supply system unless they are essential, and (2) by developing standards and requiring that standard items be used and that items which have unnecessary nonstandard features are eliminated from the system.
- Develop a system which will assure that components and spare parts are adequately identified to assure maximum competition on subsequent replacement procurements and that such components and spare parts are provided to prime end item contractors when available from inventory.
- Reexamine existing replacement standards for equipment and make any necessary adjustments to avoid procurement of replacements unless they are necessary to avoid safety hazards or avoid excessive maintenance and operating costs.
- Report results of these efforts to me on February 1, 1967, and from time to time thereafter, as appropriate. The reports should cover procurement and supply management in the Department of Defense and the civilian agencies and should include facts concerning progress in (1) reduction of inventories, (2) utilization of excess property and redistribution of other stocks in lieu of new procurement, (3) reduction in the number of items in supply systems, (4) changes in equipment replacement standards, (5) recovery or pooling of any assigned equipment found to be inadequately utilized, (6) improvement in property management by Government contractors, and (7) any other pertinent information.

/S/LYNDON B. JOHNSON

"NEW EMPHASIS"

(See pages

THE SECRETARY OF DEFENSE
WASHINGTON

October 17, 1966

MEMORANDUM FOR THE PRESIDENT

Your memorandum of September 16, 1966, to the Heads of Departments and Agencies directed each to join in a Government-wide effort to improve the procurement and management of property. I wish to assure you that the Department of Defense will participate enthusiastically and vigorously in the pursuit of the objectives set forth in your memorandum.

Our well established Cost Reduction Program already addresses itself effectively to the general effort you have requested. Performance under this Program can be improved, however, and I have directed the Secretaries of the Military Departments and the Directors of the Defense Agencies to give new emphasis and personal direction to the Program at this time. In addition, those action areas assigned by your memorandum to the Department of Defense will be addressed separately to maximize the improvement potential residing in each.

You may also be assured of the complete cooperation of this Department with the General Services Administration in this important effort. In that connection, the Assistant Secretary of Defense (Installations and Logistics) and the Assistant Secretary of Defense (Administration) have been nominated to serve on an Ad Hoc Committee for Improvement in Procurement and Management of Property, to be chaired by the Administrator, General Services Administration. It is expected that this Committee, with representation from all the major agencies of the Government, will provide the means by which the necessary actions required by your memorandum can be mutually explored and expedited.

/S/CYRUS VANCE
DEPUTY

FOR COST REDUCTION

nd 53)

THE SECRETARY OF DEFENSE
WASHINGTON

October 17, 1966

MEMORANDUM FOR THE SECRETARIES OF THE MILITARY DEPARTMENTS
THE CHAIRMAN OF THE JOINT CHIEFS OF STAFF
THE DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING
THE ASSISTANT SECRETARIES OF DEFENSE
THE ASSISTANTS TO THE SECRETARY OF DEFENSE
THE DIRECTORS OF DEFENSE AGENCIES

SUBJECT: Improvements in the Procurement and Management of Property

The President's memorandum of September 16, 1966, copy enclosed, directs Heads of Departments and Agencies to increase their efforts in seven general areas of mutual interest where the need for improvement in the procurement and management of property is apparent. In addition, the President has directed the Secretary of Defense and the Administrator of General Services Administration to further the over-all effort by taking action on six specific areas offering a high potential for cost savings through improved management.

The Cost Reduction Program of the Department of Defense already addresses itself effectively to almost all of the areas in which the President desires increased effort. However, it is incumbent on each addressee to strive unremittingly to improve the performance of his organization in behalf of the Cost Reduction Program. As the President noted, we can do better.

With respect to the specific tasks directed by the President, the Secretaries of the Military Departments and the Directors of Defense Agencies will be responsible for assuring that action is taken in each of the first seven tasks which appear on pages 1 and 2 of the President's memorandum. The Assistant Secretary of Defense (Installations and Logistics) will be responsible for action on the remaining tasks and will work with the military services, the Defense Supply Agency, and the General Services Administration.

In addition to this specific assignment, the Assistant Secretary of Defense (Installations and Logistics) and the Assistant Secretary of Defense (Administration) have been nominated to serve on an Ad Hoc Committee for Improvement in Procurement and Management of Property, to be chaired by the Administrator, General Services Administration. This Government-wide committee has been formed principally to provide the means by which the necessary actions required by the President's memorandum can be mutually explored and expedited.

I have asked the Assistant Secretary of Defense (Installations and Logistics) to monitor this program for the Department of Defense.

I ask that each of you give this matter your personal attention, and that the full energies of your organizations be devoted to greater progress. Please report by memorandum on January 3, 1967, to the Assistant Secretary of Defense (Installations and Logistics) a narrative description of the results you have achieved in each of the assigned tasks. The Cost Reduction Program reporting system will be used where applicable.

/S/CYRUS VANCE
DEPUTY

PERSONNEL RETENTION

Continued from page 17

Many of the recommendations cannot be supported by the detailed mathematical treatment the Task Force would have preferred. They are, however, supported by hard evidence and practical logic. While the payoff in most instances cannot yet be computed, to say that a factor is not precisely measurable is quite different from saying it is not important.

Taken together the recommendations formulated in response to the Secretary of the Navy's Task Force findings aim at:

Removing or reducing unnecessary frustrations, privations and annoyances of naval life and providing suitable compensation for the features of this sort that must remain; increasing the esteem and esprit of Naval personnel through opening up their opportunities for individual accomplishments and the adoption of measures to enhance the internal and public image of the Navy; to raise and maintain standards, to increase selectivity; and to make clear by emphasis the importance to the Navy service of the people individually and collectively who comprise it.

A Program Management System for Implementing Approved Recommendations

A Program Management Planning and Control System has been established within the Bureau of Naval Personnel under the supervision of the Special Assistant to the Chief of Naval Personnel for Retention Matters to provide for the monitoring and coordination of implementation of all recommendations approved by the Secretary of the Navy.

This system provides a means of defining in detail objectives appropriate to each echelon of activity, from total program to each individual work assignment and specifying responsibility for each chronological milestone to be accomplished according to a predetermined time frame. A periodic review and updating of each individual plan permits focusing attention on specific milestones, particularly those delayed, in order that timely corrective action may be taken to achieve completion of the program objective within approved time frames and in order to identify and appraise uncorrectable delays.

Utilization of this management tool has permitted the implementation group to separate the complex total support problem for implementing recommendations into discrete manageable "pieces" without loss of the total picture.

Although the implementation of approved recommendations entailing substantial funding will of necessity be implemented at a deliberate pace in light of the exceptional fiscal demands arising out of hostilities in Vietnam, it is confidently expected that the total package will eventually be implemented and will represent an important overall improvement in the conditions of naval service. ☐

FAMILY HOUSING

Continued from page 24

In the case of one location where the entire installation has been declared excess except for the housing, we are using all of the units for dependents of military personnel serving unaccompanied tours in overseas area. This not only responds to humanitarian needs, its produces attractive savings.

As a further effort in connection with base closures, we are concentrating on ways and means to recover the Government's investment in the military family housing and, at the same time, minimize the economic impact of large quantities of excess housing on the local community. In conjunction with the General Services Administration, we have recently worked out arrangements where a protection and maintenance contract has been entered into with a local housing authority which provides for maintenance and operation of the units at no cost to the Government. Such arrangements enhance the possibility of favorable sales and recovery of mortgage indebtedness at such time as when the housing market has returned to normal. The first such contract was entered into on September 1, 1966, with the Lincoln (Nebraska) Housing Authority for the 1,000 military family houses at Lincoln Air Force Base. The Air Force expects to save approximately $150,000 in maintenance costs on these houses during FY 1967 alone. The most significant savings, however, will occur at the time of the ultimate sale of the houses. At that time, we should receive the mortgaged value or higher price for the units instead of a small percentage of the value which would have been the base if the sale had been made at the time of peak economic impact resulting from the base closure. We are hopeful that these arrangements will provide a basis for application to other communities having similar economic adjustment problems.

Cost Reduction Accomplishments

Although the Defense cost reduction program has been touched on briefly, we would like to mention the

subject again in relation to performance during the past year. For FY 1966 against a goal of $19 million for family housing, the Military Departments accomplished $28 million in cost savings. This may be small in relation to the total effort, but it is certainly significant in the light of the overall budget for family housing.

Although accomplishments in the management of the housing program have produced a more efficient and economical operation, we still have additional areas which we must tackle. This is not only the era of sophisticated weapon systems, it is also the era of sophisticated management. Continual improvement is not only a source of satisfaction to the individual, it is also an obligation that we do the best possible job, in order that the business of Defense is conducted in the most intelligent manner and with the least drain on our country's resources necessary to provide adequate protection for the Nation. The role of top management is primarily to establish objectives and provide leadership toward achievement of established goals. Success in management of a program must be attained by the day-to-day actions of many people. It is these individual increments which create the mosaic of efficiency and managerial professionalism. Today, we can take great pride in being Defense managers, regardless of our organization echelon. And it is that pride, exhibited by military and civilian alike, which enhances our Nation's military posture.

School for Managers

Perhaps the key factor underlying the entire foundation of our management system is the caliber of the manager. We must develop good, professional-type managers at all echelons of command. In the area of family housing, we are working to insure the professionalism of our family housing mangers in many ways. As an important step in this direction, we are instituting a school to begin next year which will provide formal training to prepare housing management personnel for their duties, as well as to indoctrinate those in assignments related to the family housing business. Training will include programming, budgeting, design, construction, operation, maintenance, utilization and disposition of housing facilities. We expect to have a curriculum which will include not only the most up-to-date information on each of these areas but also will cover essential historical data which is useful to those running the family housing program. We hope that the majority of all personnel concerned with family housing eventually receive this training. We feel confident that the school sessions will bring about an insight into the current thinking on various areas of the program and will provide a form for exchange of ideas among the personnel of individual organizations, leading to new proposals for further management improvement and cost savings.

As we have indicated above, the primary goals of improved housing management, as set forth when the office of the DASD(FH) was established, have been achieved. We expect to make further improvements on a continuing basis in each aspect of the program to insure the maximum return to the Government for every dollar spent. □

Luck is infatuated with the efficient.

Persian proverb.

Continued from page 36

We are experimenting with the use of carefully designed programed instruction—matched specifically against actual on-the-job requirements—which allows the student to proceed at his own individual pace, rather than merely be herded along at an arbitrarily determined group pace.

We are breaking new pedagogical ground in the Defense Department in order to accomplish this.

So successful, for example, has been the use of closed-circuit television in Defense training that the Army has recently established an entire individual training television network. The great merit of closed circuit TV is its flexibility. A low-aptitude student can use video tapes as an aid to his formal classroom instruction, and end by becoming as proficient as a high-aptitude student.

Indeed, the whole concept of "low aptitude" and "high aptitude" now needs redefinition. What do these designations really mean? One thing is certain: they mean something very different than we have believed in the past.

There is now ample evidence that many aptitude evaluations have less to do with how well the student can learn than with the cultural value-system of the educator.

Too many instructors look at a reticent, or apathetic, or even hostile student and conclude: he is a low-aptitude learner. In most cases it would be more realistic for the instructor to take a hard, honest look in the mirror and conclude: I am a low-aptitude teacher.

Students clearly differ in their learning patterns. It is the educator's responsibility to deal with that pattern in each individual case and to build on it. More exactly, it is the educator's responsibility to increase the most favorable conditions under which the student himself can build on his *own* learning pattern, and at his *own* pace.

Ultimately, it is not the teacher who teaches at all. It is the student who teaches himself. Aquinas in the 13th century, and Aristotle a millenium and a half before him, both suggested that a teacher cannot, strictly speaking, be the *cause* of the student's knowledge, but only the *occasion* of it.

Modern educational psychology confirms this.

But instead of striving to be the inspiring, reward-reinforcing, motivation-bolstering occasions of their students' knowledge, too many teachers end by causing them to retreat into a mental fog of boredom, confusion and noncomprehension. This grisly mix of understandable reactions is then, all too often, simply labeled: "low aptitude."

We have already discovered, within the Department of Defense, that the prime reason many men "fail" the aptitude tests given at the time of induction is simply that these tests are geared to the psychology of traditional, formal, classroom, teacher-paced instruction.

Further, these tests inevitably reflect the cultural value-systems and verbal patterns of affluent American society. That is why so many young men from poverty backgrounds do poorly in the test. It is not because they do not possess basic—and perhaps even brilliant—intelligence; but simply because their cultural environment is so radically different from that assumed by the test designers.

It is, for example, a generally accepted value of American society to want to "achieve" something in life. That is a sound value; but it is a value many young people from poverty-encrusted environments simply have not been exposed to. In their world, achievement is seldom advanced as a value, only because it does not exist as a realistic possibility.

Such a person appears to have "low aptitude" by conventional standards, since he seems poorly motivated.

Clearly the way to measure his "aptitude" is to place him in a situation that offers the encouragement he has never had before. That means a good teacher, and a good course of instruction, well supported by self-paced, audiovisual aids. It also means less formal, classroom, theoretical instruction, and more practical on-the-job training.

Under these conditions, the so-called "low-aptitude" student can succeed.

We are, therefore, in the current fiscal year going to accept 40,000 men who currently fall into the disqualification category—men who fail to score well on the standard aptitude tests, but who when exposed to intensive instruction in military skills and practical on-the-job training can qualify as fully satisfactory soldiers; men who have been deprived of proper health care, but who can be brought up to physical fitness standards within a period of a few weeks; men whose "low aptitude" and lack of achievement are a function of external environment rather than internal potential.

In the next fiscal year, and in each of the years thereafter, we will plan to accept 100,000 additional men in this category.

These men will be a challenge to our ability to innovate and modernize a training system, which *must* be kept in as high a state of readiness as any combat unit in our force.

The Defense Department has been conspicuously successful at developing the most highly efficient weapon system on earth.

We believe we can also produce the most highly efficient citizen Army on earth.

Some of those citizens—in such an Army—will be men emerging from another battle: the battle of built-in poverty.

The poor of America have not had the opportunity to earn their fair share of this Nation's abundance, but they can be given an opportunity to serve in their country's defense and they can be given an opportunity to return to civilian life with skills and aptitudes which for them and their families will reverse the downward spiral of human decay.

Our understanding of poverty in our own country will help us understand it in others. In the protracted, twilight-wars of insurgency and subversion—which our adversaries claim will characterize our era—that understanding is important. □

COST REDUCTION FOR INDUSTRY

Continued from page 37

cost reduction program? They include the following:

(1) A plan with established goals.
(2) A strong and courageous leader.
(3) Active top management backing.
(4) Effective communications and publicity.
(5) Rewards and recognitions.
(6) Full employee participation.
(7) Assignment of responsibilities coupled with the required authorities.
(8) Reports and controls.
(9) *A lot of commonsense.*
(10) Strong and persistent followup measures covering results.
(11) Insure the perpetuation of the cost-saving methods—do not permit them to be abandoned without cause.

Best Bets for Cost Reduction

What are some of the functions and operating areas usually sensitive to a cost cutting attack? They are briefly described as follows:

(a) *Product design:* Product design engineers should be provided with tangible information that will permit manufacturing cost control during the early stages of design formulation and thereby reduce the time period between design development and ultimate production, coupled with decreased cost.

(b) *Quality control:* All companies agree on one thing: the quality control function costs too much for the services rendered. In fact, very few companies know the total monthly cost of their particular system. Further, few companies know or have segregated all the elements of these costs, so they can be properly dissected, analyzed and effectively challenged. Too many companies consider inspection practices quality control. Little is done regarding the attitudes and inefficient practices of the workers. Causes of defective parts must be pinpointed and then causes removed. A quality analyst can play an important role here.

(c) *Streamline your material handling practices:* It has been stated that the material handling costs of manufacturing industries average between 20 and 30 percent of their total labor costs. This is a fertile field for savings.

(d) *Value analysis:* For optimum results a well planned, aggressively administered attack on costs must include investigations and analysis in great depth. The utilization of value analysis techniques provides this need. It has the facility for filling in the blind spots. Regardless of how good a product already is, the value analyst goes deeper. He assumes that there is a cheaper way to get desirable quality, acceptable performance and to retain, if not improve upon, the existing sales features. It is his job to determine how this can be accomplished.

(e) *Shipping and receiving department practices:* These departments are generally productive areas for cost reduction. Many opportunities exist here to introduce material handling equipment. Careful planning and close attention to operating details, the receiving department, stocking and floor layout in the warehouse, traffic considerations, better packaging and effective methods studies, coupled with the introduction of production standards will provide additional operating economies.

(f) *Preventive maintenance:* Every plant, large or small, has building and machine repairs. It follows then that every company has problems in maintenance. If these problems, to a limited degree, are predictable, they are, to a similar extent, also controllable. Effective plant managements therefore should arrange for the direction and control of this function.

(g) *Plant equipment analysis:* A determination should be made to decide whether your equipment is better than the competition's. Technology is moving at so rapid a pace today that while a new and modern machine is being installed in your plant, the manufacturer of it already has an improved design on the drawing boards. You cannot always wait until your present equipment is worn out before you replace it.

(h) *Safety and accident prevention:* Improved safety programs reduce operating costs. A well-planned and aggressively administered safety program will greatly reduce your plant accident frequency. The indirect or uninsurable costs of accidents generally contribute the major share. Efficient production methods and safety cannot be separated. Employee attitudes toward safety can be improved through education, training, use of persuasion, motivation, and a judicious exercise of discipline.

(i) *Use work simplification for employee involvement in methods improvement:* By the use of work simplification techniques, supervisors and production employees can become involved in methods improvement, resulting in extensive cost reductions in plant operations. This requires well planned training programs led by competent instructors. The work simplification doctrine offers many advantages: provides for full participation by employees, encourages consultive management, stimulates human interest in plant problems, reduces employee resistance to change and, most of all, gives each employee an opportunity to become a member of the management team. Further, at the conclusion of a plantwide program of instruction, it effectively paves the the way for introducing an employee suggestion system.

(j) *Improve your personnel administration:* A sound, well developed, and effectively executed plan of personnel administration improves employee morale. This encourages and inspires employees to greater and more enduring interest in the problems of management. It follows that this attitude will have an important impact on the results of a cost reduction attack an operations. The real substance of a successful industrial relations policy definitely lies in the efficient implementation of top management's human relations philosophy.

(k) *Motivating employees to cut costs:* To attain more efficient and low cost operations strong employee motivations must be produced, creating a real desire among them to do their best in the attainment of your objectives. They must first, however, possess a high degree of morale. Together these two employee circumstances, motivation and morale, coupled with the exercise of discipline, should be established before a cost attack on your operations is initiated. A well planned program, in order to be successful, requires effective and strong leadership.

(l) *Review of burden expense:* Overhead costs are usually difficult to appraise since accurate standards of comparison are not usually available. They may also contain some nebular elements, as well as including variables, that often defy segregation and analysis. A word of caution is also appropriate here—a too enthusiastic slashing of burden expense could cause irreparable damage to other operating areas. One of the most productive areas for savings is in indirect labor expense.

(m) *More effective use of management controls:* Company operations cannot be effectively managed without the use of formal control programs. Executive and supervisory personnel, at all levels, should be provided with adequate administrative tools. They should also receive proper training in how and when to use them. Control devices that are used must be tailored to fit the particular conditions prevailing in your company.

(n) *Production control and inventory turnover:* A well planned and effectively administered production control system is of great importance in any modern business operation for two reasons:

(1) The management of finished good inventories, in most manufacturing companies, is the heart of the day-to-day problem of coordinating sales and production.

(2) Inventory losses are considered to be one of the primary direct causes of business failure and have been widely present in most cyclical business declines and depressions. It is not without cause, therefore, that inventories are so frequently referred to as "the great graveyard of business."

(o) *Plant expenditure evaluation:* Employ annual capital budgets and then exercise extreme care in spending them. Justify every expenditure by its expected yearly savings. Followup and assure yourself you are realizing the expected savings.

(p) *Paperwork analysis:* By the utilization of the analytical tools and techniques of the industrial engineer considerable savings can be accomplished here.

It is generally accepted that business management is a profession, taking its place alongside medicine, education, law and theology. The professional manager is expected to understand the tools of his trade as well as be a master in their utilization. One of these tools that must be continually employed is a cost cutting technique coupled with expense surveillance. It also should be stated here that cost cutting and expense surveillance must be year 'round assignments and not a sudden rash of unreasoned cost prunings. For example, experienced judgment, calm deliberation and careful examination, supplemented with analysis of all the pertinent facts, should precede any wholesale reduction in personnel or any major change in operations. It is mandatory that a successful cost reduction program have top management's full support, be well planned and aggressively administered by a courageous and competent leader. ☐

CONTRACTOR PROGRAM MANAGEMENT REALINED

Management responsibility for the Defense Contractor Cost Reduction Program, previously shared by two directorates within the Office of the Secretary of Defense, now is centered in one.

Formerly, program review was administered by the Deputy Assistant Secretary of Defense for Procurement and systems development was handled by the Deputy Assistant Secretary of Defense for Logistics Services. The latter now has both functions.

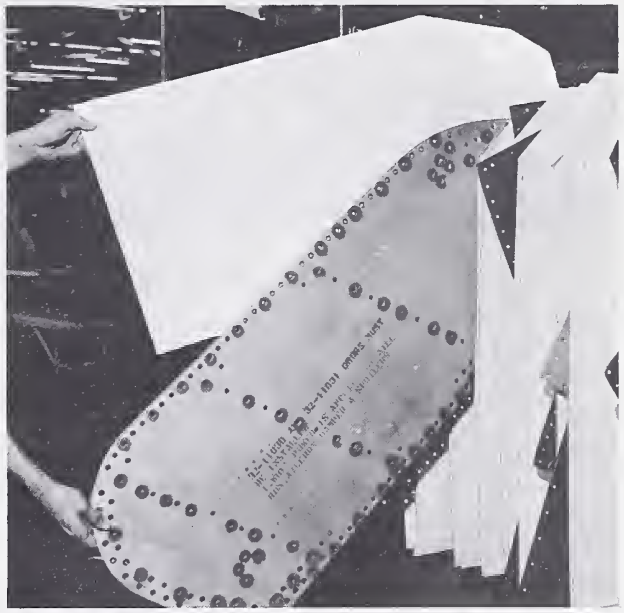
This realinement makes the Directorate for Cost Reduction Policy on the staff of Robert C. Moot, Deputy Assistant Secretary of Defense for Logistics Services, the focal point for policy matters affecting both the DoD in-house program and the contractor program.

The Contractor Cost Reduction Program is a companion to the Defense Cost Reduction Program. Eighty companies with 200 plants are currently participating and reporting cost reductions to the Defense Department. The contractor program, inspired by President Johnson and Secretary McNamara, was formalized in early 1965.

Commander Herbert L. Gurnee, SC, USNR, formerly Director of the Department of the Navy Cost Reduction Program since its inception, has joined the Directorate for Cost Reduction Policy and has been assigned as Coordinator for the Defense Contractor Cost Reduction Program. Commander Gurnee, a graduate of the University of Minnesota and Harvard Law School, is a veteran of 19 years' active duty with the Navy. ☐

Commander Gurnee at center (see story above) chairs group of cost reduction project officers in discussion of the interface between the "contractor" and "in-house" programs. From Chairman's left are Messrs. O. G. Green (Navy), A. C. Yoksas (Army), T. H. E. Winshurst (DCAS), H. Bowers (OASD (Compt)) and E. E. Wolfe (DSA). From Chairman's right are Messrs. R. C. Chase (Army), H. Huber (Air Force) and G. A. Vatore (Army).

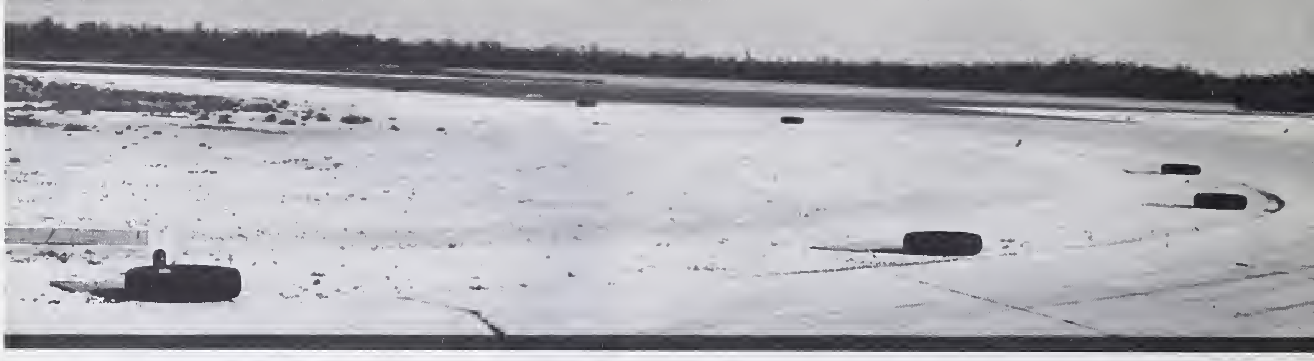
DIVIDE AND CONQUER



McDonnell Aircraft Corporation now uses cardboard dividers to separate and protect aircraft doors. Previously, the doors were wrapped in protective paper. McDonnell reported annual labor and material savings of $45,515 from this action in the Defense Contractor Cost Reduction Program. ☐

Stanley Jackson, truckdriver at Defense Depot Tracy, displays the removable rear bracket which permits a ton-and-a-half truck to carry pipe and steel up to 30 feet in length. The front bracket is permanently attached on the truck bumper and fender. Stanley received $90 for this suggestion which has resulted in an estimated annual savings of almost $1,800 for the depot.

Previously, any load exceeding 12 feet in length, required a semi-truck and trailer. Most deliveries had to be made to the various airlift and shipping facilities in the San Francisco Bay area. California State laws permit ton-and-a-half trucks to travel faster on State highways, and the smaller truck made for easier handling in the congested Bay-area traffic.



OLD TIRES CONTROL RUNWAY COSTS

High performance jet aircraft employ a drogue chute after touchdown to reduce the speed of the aircraft and shorten the rollout distance. At turns in the taxiway, or as a result of crosswinds, the chutes frequently become entangled in runway light fixtures, causing extensive damage to the fixture and often ruining the chute, as well.

An average of four fixtures per day were being damaged beyond repair at the U.S. Naval Air Station, Key West, Fla., until installation personnel hit upon a simple solution to the problem. To protect the fixtures, nonsalvageable aircraft tires are simply placed around the light fixtures. The tires prevent the chutes from becoming entangled without restricting the efficiency of the lighting system.

Based on previous damage experience of four fixtures a day, the Key West Naval Air Station estimates annual savings of $10,944. □

TOOLS SCOOT TO JOB

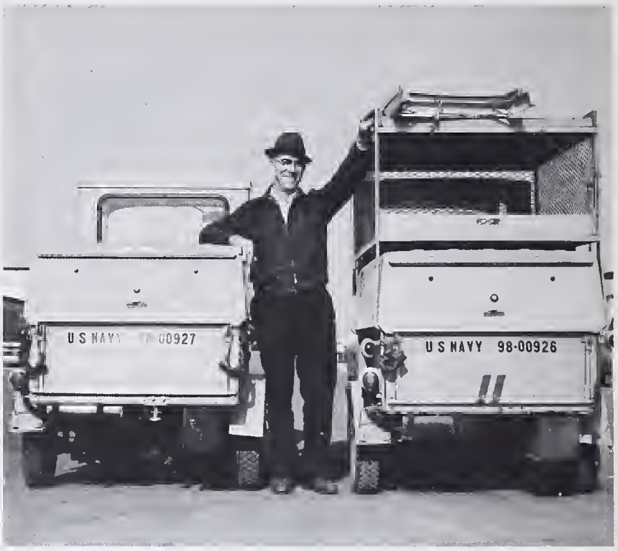
Transporting tools and materials to the job caused Charles Starry, a carpenter at the Naval Supply Depot, Mechanicsburg, Pa., delay and inconvenience.

The answer to his problem was to make one trip suffice. To do this, Mr. Starry devised a two-level carrying apparatus for hauling tools on his three-wheeled motor scooter, similar to the kind used by mail carriers. His action saved $742.56.

The device is supported on the rear compartment of the scooter by four steel posts. The walls between the second and third levels are made of expanded metal mesh, which provides a better rear view, offers less wind resistance, and is lighter in weight than solid materials.

Previously Mr. Starry, who performs general maintenance and emergency repairs in any of the 70 buildings over 840 acres, could only carry small tools in the rear compartment. The two-level addition gives the vehicle three times its former usefulness, thus eliminating the need for larger trucks and drivers to carry big pieces of equipment such as ladders and carpenter tools. The carry rack is also large enough for small quantities of lumber, light bulbs, glass, and other materials which enables the carpenter to do the job when he responds to trouble calls instead of returning to the shop after inspecting and estimating only.

As a result of his suggestion, Mr. Starry of New Oxford, Pa., received $45. It was his second suggestion award for the Government.

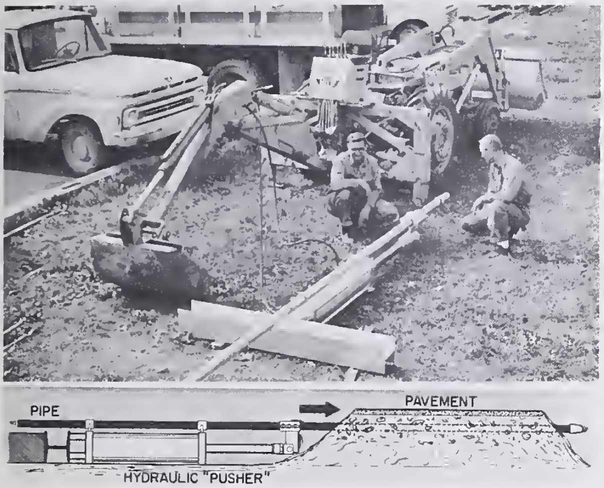


PURGES PAPER

Fifty-four tons of paper hit the wastebasket from file cleaning alone in McDonnell Aircraft Corporation's recent companywide campaign against unnecessary paperwork. The drive also eliminated 408 automated reports, over 1,200 report copies, 76 manual reports, and 199 forms. In addition, 237 forms were standardized.

The company reports that the cleanup is saving it nearly $1 million a year. □

LEAD PIPE CINCH



How would you run a pipeline under a concrete pavement? Break up the concrete, excavate a channel for the pipe, backfill, tamp, and replace the pavement?

That process was too time-consuming and costly for Harry Bennett and Paul Rose of ARO, Inc., operating contractor for the Air Force's Arnold Engineering Development Center, Arnold AFS, Tennessee. These two ingenious employees improvised a hydraulic pipe jack from salvaged parts which literally "squirts" the pipe beneath a concrete driveway without disturbing the pavement.

The first two such crossings were made at $444 less than the cost of the old method. ARO's Cost Reduction Program expects to record substantial additional savings from future applications of this novel idea. ☐

NEW FILM BEST YET

The 1966–67 version of the Defense Department's annual cost reduction film is now available in film libraries. Previewers say it is the best yet—a cinch to dispel any half-baked notions that cost reduction rates less than first-class attention at the highest levels of Government. The word is that Secretary of Defense emphasis on the program and Presidential enthusiasm for Defense employee's accomplishments come through more clearly than ever in the film.

The film (OSD 1–66) has other attributes that place it ahead of past versions.

First, it is shorter and thus more adaptable to training sessions. A single 32-minute showing covers both the Secretary of Defense Cost Reduction Press Conference and the Presidential Awards Ceremony. Formerly, two different films treated these subjects and their total running time was nearly an hour.

Second, the new film is completely in color. Coverage of previous awards ceremonies had been in black and white.

Third, the Army Pictorial Center has beaten its own outstanding records for technical excellence in making this film.

One audiovisual expert in a non-Defense agency reports that last year's Press Conference film received tremendous play in his agency. This year's film should rate even higher. ☐

HIGH POWERED SAVINGS BY DYNAMIC DUO

One Service's brew can be another Service's nectar. It happens.

Mrs. Ruth Urban, an Inventory Management Specialist in the Air Force's Oklahoma City Air Materiel Area triggered an action that not only saved $289,000 for the Air Force but also produced a whopping savings of $1,300,000 for the Navy.

It all started when Mrs. Urban learned that a company having a production contract with the Navy to manufacture T–58 Engine Test Stands could use excess B–52 turbosuperchargers as dynamometers on each stand. She reported the request to her supervisor Winfred McPherson, and they began an all-out search for other possible uses for the excess items.

They found that a contractor producing T–58 Test Stands for the Air Force could use 64 of the superchargers. A call to the Navy revealed that an additional 138 units were needed. Also, Navy indicated a requirement for 300 units more, over the next 3 to 5 years

As a matter of fact, business in excess B–52 turbosuperchargers became so brisk that a worldwide inventory was taken to identify the number of units available. Additionally, word has gone out to overseas locations to place their excess quantities of the item in "hold" status to save them from being discarded into base reclamation salvage or processed for other disposal action. ☐

The first requisite of a good citizen in this Republic of ours is that he shall be able and willing to pull his weight.

John Trotwood Moore

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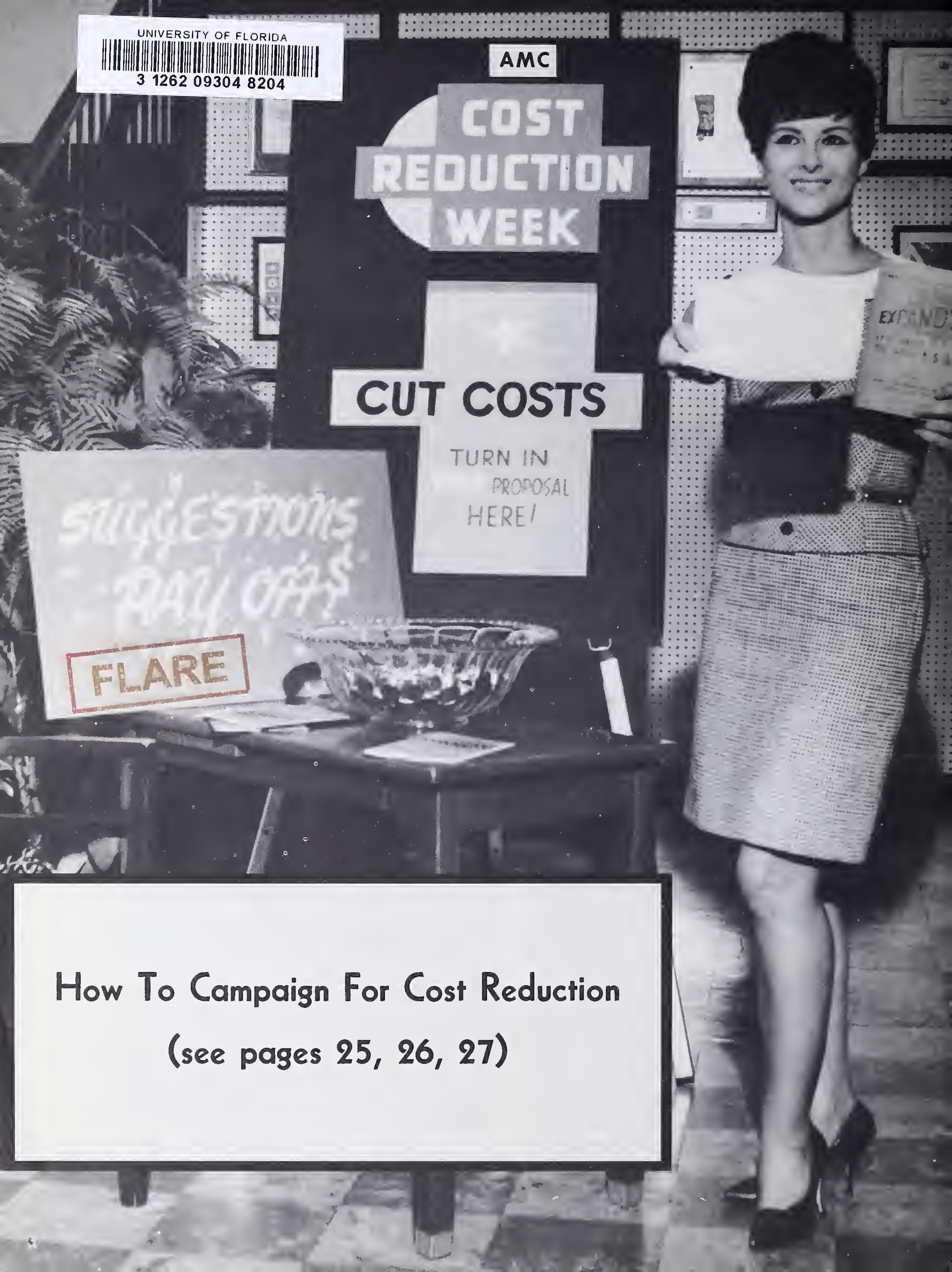

How To Campaign For Cost Reduction

(see pages 25, 26, 27)